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US STEEL

TENNESSEE SHEETS

Volume 90 Number 8

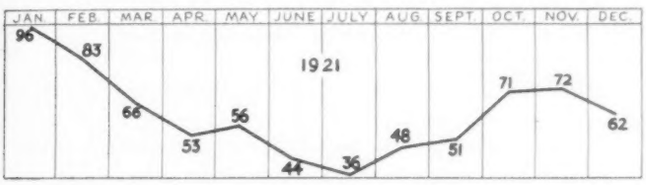
STEEL

For forty-eight Years—IRON TRADE REVIEW

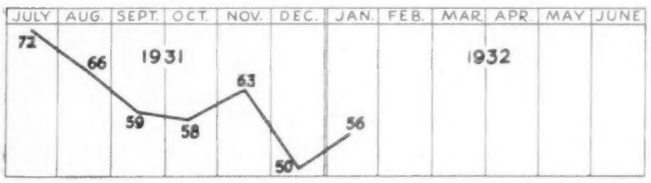
PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

The Week In Steel

FEBRUARY may be to the recovery in steel what Maine is to a presidential election. Between the trend of steel ingot production in the first seven months of 1921 and the seven months beginning July, 1931, the similarity is striking. On the following chart, depicting the daily average output of ingots in 1921 in thousands of gross tons, observe the double bottom registered in April and July, the sequel to which was a rise which was not checked until December:



Then note, on the second chart, how the ingot rate of recent months has paralleled 1921, although on a lower scale, and that again a double bottom has developed:



Now, if February can muster sufficient strength to better the January production rate there will be sufficient warrant for concluding that recovery is under way and is likely to continue until it runs afoul of the midsummer lull, as the 1921 rise did of the year-end letup.

What the Country Needs Is Travel

With the steel operating rate for the week ended Feb. 20 estimated at 25 per cent (page 49), the average for the first three weeks of February is 26.8 per cent, almost duplicating the official 26.5 per cent rate for January. The fate of February thus rests with the current week. . . . In turn, transportation holds the balance of power—transportation by rail and automobile (page 41). Thus far in February steelmakers have coasted on the hangover momentum from the January rise; production has been the sum of minimum requirements of major outlets for steel other than transportation. With Ford a prospective heavy buyer and the railroads rapidly approaching spring maintenance work, any change, apparently, must be on the side of improvement.

Another Red Menace from Russia

Four blast furnace stacks were lighted last week (page 41), making a net gain of 9 in active stacks since Jan. 1, encouraging even con-

Photo, Jones & Laughlin Steel Corp.

Pickling: Fifteen tons of blooms are being removed from the sulphuric acid vat, free from scale, preparatory to rolling and piercing, converting them to seamless steel tubes

Courtesy, J. A. Werme Steel & Iron Works

Steel advertises a town: This 18-ton oil derrick was erected recently in the heart of Oklahoma City, Okla., part of an exhibit of local manufactures, sponsored by Junior chamber of commerce

sidering that two of the stacks are feeders for ingot mold plants. . . . None of these stacks is a consumer of Russian iron ore (page 13), imports of which increased so sharply last year. . . . A new hurdle for improved sentiment is the threat (page 15) of a federal sales tax on manufactures.

February, Mother of Steel Chieftains

Steel as well as politics has honored February. On Feb. 18 Charles M. Schwab, nestor of all steel executives, was 70—still vigorous, still optimistic, foreseeing nothing but "prosperity and success" for the country, wanting to relive (page 14) only the day when he refused to finance the Wright brothers and their "rattle-brained flying scheme". . . . On Feb. 15 James A. Farrell, retiring president of the United States Steel Corp., was 69 or 70, the records being conflicting. . . . And George Washington might have been a colonial ironmaster (page 13) had not primogeniture placed his father's iron mines in the hands of Laurence, his older half-brother.

U. S. Steel To Get More than New President

In the wake of Mr. Farrell's retirement many changes in personnel of the Steel corporation are being churned up, most of which will be effective before the new president takes office April 19. Whoever is Mr. Farrell's successor —if not named Tuesday then certainly on March 29—will breathe an atmosphere unworried by the expansion of independents (page 13), confident that the Corporation can outlast its competitors in the present period of unremunerative prices. . . . This period may be prolonged if forthcoming Ford purchases of steel are predicated on the theory (page 17) that steel with other automotive materials must make further sacrifice to initiate a new cycle.

More Steel in Accessories than Burners

Installation of oil burner equipment in 774,-500 houses as well as hotels, office and apartment buildings and industrial plants has proved a great stimulus to the consumption of steel (page 28). The burner itself usually is small but the necessary auxiliary equipment such as tanks, piping and controls runs the steel demand for this industry to 100,000 tons annually. . . . In public utility electric plants, however, oil is a waning fuel (page 26), its consumption having declined 13 per cent last year, while, natural gas increased its proportion 15 per cent. . . . By the use of smaller checkers, the percentage of blast furnace gas consumed in stoves has been reduced (page 32) from 35 per cent to 25.

Where Some Crooners Should Broadcast

Where a smooth, even thrust through a measured distance on shop equipment is desired, the electrohydraulic operator, more generally termed a thrustor, is ideally suited (page 26). This device is being applied successfully to the control of presses, brakes, welders, wire stranders and similar machines, eliminating hand operations and providing uniform and steady pressure-controlled movement. . . . Another type of control is obtained by an air signal system in a Chicago mill, 16 pneuphonic horns being located at soaking pits, rolls, heating furnaces and other departments (page 32), while in a Pennsylvania strip mill a public address system relays instructions through mill broadcasts.

Dry Stoppers Vertically, and Save

An Ohio steelmaker recently built a ladle stopper drying oven in which the stoppers are handled entirely in a vertical position, and thereby practically eliminated the usual difficulties from running stoppers and burned-off stopper rods (page 23). The oven is gas-fired, has capacity for 100 stoppers and shows good operating economy. Some interesting handling equipment was developed for charging and removing the stoppers.

Plan Corp. Personnel Changes As New President Enters

NEW YORK — Changes in executive personnel of the United States Steel Corp. and subsidiaries are under active consideration. An announcement of the successor to James A. Farrell as president of the Corporation may come following the next monthly meeting of directors, Feb. 23, although more likely it will be deferred until the meeting of March 29.

Other changes now under consideration are expected to materialize without delay. In fact, present indications are that all contemplated changes will have been effected by the time of Mr. Farrell's retirement, April 18, or shortly thereafter, and that the executive groups, both in the Corporation and its subsidiaries will thereafter continue without any further changes of importance. In other words, the third of the major steps undertaken by Myron C. Taylor, chairman of the finance committee, soon will be brought to a conclusion.

Certain problems are reserved for the future. One of these is understood to involve closer co-ordination, in various phases, of subsidiary companies. These matters, however, are of lesser importance. The big job, involving fundamental matters, is on the verge of having been accomplished.

Bond Retirement Aids Position

With reference to meeting prevalent business conditions, the Corporation is in the best shape in its history. The initial step in Mr. Taylor's 3-point campaign — retirement of bonds aggregating $303,111,000— placed the Corporation in a unique position. Early in 1929, when it became clear that a depression was bound to materialize sooner or later, these bonds were redeemed and the Corporation thus relieved of the necessity of providing annual fixed interest and sinking fund requirements of $29,247,350.

Today the Corporation faces only the charges incidental to doing business, taxes, insurance, etc. It is not even under the necessity of paying dividends on either common or preferred stock. This condition, combined with its low cost of steel production, places this interest in a position in which it is untroubled over any question of survival.

The second point, a study of plant locations,. involving such considerations as location of raw materials with respect to location of consumers, both present and future, resulted in abandonment of certain plants which were not geared to the present conditions or those contemplated.

It resulted in expansion of producing facilities at plants in the general Pittsburgh-Ohio producing district and in the Chicago territory, also in the acquisition of producing capacity in California. These results are indicative of how this producer now feels about the geographical trend affecting steel.

The question of size is not one that is bothering the management of the Corporation. That certain independents, largely as a result of mergers, have increased greatly in size, and that the Corporation's percentage of the steel production of the country has been gradually tapering off, are phenomena viewed with no concern whatever. These results are held to be inevitable because of the Corporation's time-honorded policy, frequently alluded to as "holding the umbrella."

The present management places a high valuation on the policy under which the Corporation does not take the lead in lowering prices. It believes that a policy of live-and-let-live, refraining from cutting prices to get orders, is a real American policy, one that is fair to consumers and competitors and industry as a whole. Whether this policy will result in continued slight tapering off in the curve indicating the Corporation's percentage of the steel production is of no moment to the management.

Almost an Ironmaster

GEORGE WASHINGTON'S home comforts in early life were partly supplied by the colonial iron industry. His father, Augustine Washington, owned iron mines—presumably bog ore—from which he obtained part of his income, early Virginia records show. These mines passed by the law of primogeniture to Laurence Washington, eldest son of Augustine and half brother of George, and only the accident of birth prevented the father of his country being an ironmaster.

Creditors Operate Plant

Cleveland—Consolidated Iron & Steel Co., Cleveland, and its affiliated Republic Structural Iron Works, Cleveland, are now being operated by a creditors' committee, comprised of three men, two from outside steel mill interests and one from a local steel jobbing concern. The Consolidated and Republic companies conduct a steel warehouse and structural steel fabricated business in the Cleveland district.

New York Builders Urge Licensing To End Evils

New York—Contractors and builders organizations are scheduled to appear at Albany, N. Y., Feb. 23, to advocate adoption of a bill requiring the licensing of all contractors. As written by A. A. Alles Jr., secretary of the Lien Law Revision and Enforcement association, the bill would affect 125,000 corporations and individuals doing business in New York state.

Modeled after the law in California, the bill would eliminate brokers who underbid legitimate contractors, then shop among sub-contractors to obtain prices which frequently are ruinous and sometimes lead to abandonment of jobs.

(*See* STEEL *for Feb.* 15, *page* 14)

Russia Increases Iron Ore Sales to This Country

Soviet Russia came to the fore as an important exporter of iron ore to the United States in 1931, according to the department of commerce. Purchases from Russia increased from 63,412 gross tons in 1930 to 278,612 tons last year, the latter being nearly 20 per cent of all imports.

Of the Russian imports, valued at $571,290, 218,550 tons entered through Maryland ports, and 59,976 tons through Massachusetts. Russia was second only to Chile in supplying foreign ore, imports from the latter country amounting to 750,702 tons. Cuba was third in the list of 19 foreign countries, with 89,000 tons.

Conference Aims Attack On Antitrust Laws

Santa Barbara, Calif.—That "industry and trade have the right to enter into agreement designed for the elimination of uneconomic practices and for the preservation of sound business" was the sense of a resolution unanimously adopted by the eighth annual conference of Iron, Steel and Allied Industries of California held here Feb. 11-13.

The resolution was interpreted as a concerted effort to break down antitrust laws. Two additional resolutions were adopted, one favoring action for increased employment and

the other opposing day labor on public improvements. More than 175 delegates attended the conference, a total somewhat less than in past years.

Officers and executive committee were re-elected as follows: Chairman, R. M. Alvord, General Electric Co., San Francisco; vice chairman, E. Jungquist, Percival Steel & Supply Co., Los Angeles; and secretary, C. S. Knight, director of industrial department, California State Chamber of Commerce, San Francisco.

What's Happening In Business World

AN ACCOUNT of the discovery of stainless steel has been given by Harry Brearley, reputed discoverer of the steel, to the Cutler's Company of Sheffield, Eng., which is not to be opened until the Cutlers' Feast of 1960.

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Bethlehem Steel Corp's relief organization paid out $1,079,000 in sickness payments and death benefits, exclusive of compensation payments, in 1931, and pensions totaled $700,000.

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United States Steel Corp. has added $50,000 to a previous contribution of $100,000 to the welfare fund and emergency association at Pittsburgh.

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A portrait of President Hoover, by Philip A. deLaszlo, was unveiled Feb. 15 in the Engineering Societies building, New York. The President is a member of the Civil, Mining and Metallurgical, Mechanical and Electrical Engineers.

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First blast furnace stack at the Magnitogorsk steelworks, in Russia, was completed Jan. 9. A second furnace nears completion. First battery of coke ovens was lighted in December. When completed, the Magnitogorsk stacks will have an annual capacity of 2,500,000 tons of pig iron.

To Supply Shelving Racks

General Fireproofing Co., Youngstown, O., has been awarded contract for steel shelving racks, Wright field, Dayton, O., at $5930.74.

Would Enforce Scrap Rules

New York—Members of the New York chapter of the Institute of Scrap Iron and Steel Inc. recently authorized their officers to introduce resolutions at the annual convention of the institute in Washington, March 8-10, to create a committee on business methods to have power to reprimand any member of the institute for improper conduct in business relations with any other member of the institute.

Canadian Iron and Steel Production Falls in 1931

Toronto, Ont.—Pig iron production in Canada in December was 13,862 tons, compared with 14,292 tons in November, a decline of 3 per cent. Basic iron declined from 7755 tons to 5693 tons, while foundry iron increased from 6537 tons to 8169 tons.

Total pig iron production for 1931 was 420,038 tons, compared with 747,178 tons in 1930 and 1,080,160 tons in 1929, which was the high record. The 1931 output included 311,850 tons of basic, 80,892 tons of foundry and 27,296 tons of malleable. Ferroalloy production for 1931 was 45,731 tons, compared with 65,223 tons in 1930.

Steel ingot and direct steel castings production in December was 20,969 tons, the lowest of the year, comparing with 28,337 tons for November, a decline of 26 per cent. Production for 1931 was 637,087 tons, compared with 1,009,578 tons in 1930 and 1,378,024 tons in 1929. The 1931 tonnage was made up of 637,997 tons of steel ingots and 35,090 tons of steel castings.

Schwab, at 70, Retains Only Three Directorships

CHARLES M. SCHWAB, on his 70th birthday, Feb. 18, announced he had resigned all his directorates save those in the Bethlehem Steel Corp., Chase National Bank and Metropolitan Life Insurance Co.

"Ultimate prosperity and success" is what Mr. Schwab sees for the country. At present, he finds sentiment improving but not orders. Instead of a dole he prefers a better pension system and care of the sick.

Asked what day of his busy life he would like to relive, he cited the day he refused to finance the Wright brothers. "It seemed like a rattle-brained scheme to me," he commented.

Bethlehem Steel offices the country over were especially decorated Feb. 18. At noon he lunched with survivors of his Carnegie days; in the evening he dined with Bethlehem directors. From Bethlehem executives he received a 16-cylinder automobile.

Financial News of Steel Industry

LUDLUM STEEL CO., Watervliet, N. Y., reports for 1931 net loss of $99,144 after charges, depreciation and taxes, compared with a net loss of $433,697 in 1930. Net sales during 1931 amounted to $3,203,580, against $4,430,935 in 1930. Consolidated balance sheet as of Dec. 31 shows current assets of $4,208,975, including $991,491 in cash and marketable securities, and current liabilities of $195,157, leaving working capital of $4,013,818, which compares with working capital of $4,523,128 on Dec. 31, 1930.

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Superior Steel Corp., Pittsburgh, reports loss of $492,372 in 1931, compared with $358,924 loss in 1930.

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Interlake Iron Corp., Chicago, reports net loss after all charges of $1,357,502 in 1931. This compares with net profit of $2,066,083, equal to $1.03 a share, in 1930.

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McKeesport Tin Plate Co., McKeesport, Pa., reports net profits of $1,952,028, equal to $6.51 a share, in 1931. This figure compares with net of $2,503,897, or $8.34 a share, in 1930.

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Wellman Engineering Co., Cleveland, reports net profit of $32,547 after inventory adjustment and all other other charges except federal taxes in 1931. This compares with net of $424,868 in 1930.

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General Steel Castings Corp., Eddystone, Pa., and Granite City, Ill., reports for 1931 a loss of $3,006,117, after depreciation, interest and other charges. This compares with 1930 net profit of $603,494.

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Crucible Steel Co. of America, New York, reports net loss of $2,016,517 for 1931. This is comparable to net income of $4,045,000, or $4.17 a share, in 1930. The report shows current assets Dec. 31, 1931, of $21,871,052 and current liabilities of $3,567,417.

Foundry and Machine Shop Full-Time Hours Reduced

Foundries were found to have an average full-time work week of 50.3 hours, and machine shops 49.8 hours, in 1931, by the federal bureau of labor statistics which surveyed 388 foundries employing 28,699 and 512 machine shops employing 65,919. These were the lowest averages reported by the bureau since it began periodical examinations in 1923. In 1929 the average for foundries was

51 hours, and for machine shops 50.3. The highest full-time hours of which the bureau has records were in 1923, when they averaged 52.4 in foundries and 50.8 in machine shops.

An average hourly rate of 60 cents in foundries in 1931 was lowest since 1923, when it was 55.8 cents, but in machine shops the rate, 63.3 cents, was higher than in any preceding year except 1929, when it was 63.8 cents.

Business Is Better

THIRTY-ONE building trades in Chicago representing 150,000 workmen have accepted a 20 per cent wage reduction for 1 year. Employers had sought a cut of 25 per cent.

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Erie railroad shops at Meadville, Pa., were reopened Feb. 8.

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A survey by the Indiana Limestone Co., Bedford, Ind., indicates the bottom of a 3-year slump in building has been reached.

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Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has canceled its payless vacations because better business appears in prospect.

Form Connecticut Group of Gray Iron Institute

Organization of the Connecticut group of the Gray Iron Institute Inc., Cleveland, has been completed with the selection of J. D. Coltman, Bullard Machine Tool Co., Bridgeport, Conn., as chairman, according to Arthur J. Tuscany, Cleveland, Institute manager.

E. Sessions, Sessions Foundry, Bristol, Conn., is cost chairman; Edgar Spencer, of Philbrick, Booth & Spencer, Hartford, Conn., merchandise chairman; and W. J. Maton, Waterbury-Farrell Foundry & Machine Co., Waterbury, Conn., technical chairman.

Howard A. Stockwell, of Barbour, Stockwell Co., at Cambridge, Mass., is chairman of the Massachusetts and Rhode Island local group. Meetings will be held by the local groups from time to time.

Bar Institute Will Meet

Chicago—Plans are being made for the eighth annual meeting of the Concrete Reinforcing Steel institute at the Atlanta Biltmore hotel, Atlanta, Ga., March 7-9. John E. Edgerton, president of the Lebanon Woolen Mills, Lebanon, Tenn., and chairman of the board of the National Association of Manufacturers, Washington, will be among the speakers. An engineer of the Georgia highway commission is scheduled for a talk on concrete highway bridges.

It Pays To Have Ideas

GENERAL ELECTRIC CO., Schenectady, N. Y., paid its employes $55,739 *in* 1931 *for ideas, the highest amount going to any employe being* $1000 *and the average* $8.75. *A total of* 19,595 *suggestions was made, an average of* 428 *suggestions per* 1000 *employes. Those having sufficient merit to be adopted numbered* 6383. *Last year* 32.6 *per cent of all recommendations received favorable consideration, compared with* 32.1 *per cent in* 1930.

Metals Institute To Meet

The British Institute of Metals will conduct its twenty-fourth general meeting at the Institution of Mechanical Engineers, London, March 9-10.

The Business Week In Washington

A SALES tax on all manufactured articles except staple foods and such farm necessities as seeds and fertilizers is forecast by Chairman Rainey of the house ways and means subcommittee studying taxation. The rate is expected to be less than 2 per cent, and efforts will be made to prevent pyramiding of the tax. In addition to such a sales tax and increased income taxes, levies probably will be made on electrical, gas, gasoline and oil consumption. A draft of the new revenue bill is expected about March 1.

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Venezuela has increased import duties on steel furniture and cast iron.

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Treasury department has awarded to the United States Steel Corp. $947,308 in income tax credit for 1922.

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Interstate commerce commission has suspended until Sept. 15 revised carload rates on ex-river fluorspar in central freight association territory.

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Treasury department has allowed a drawback on duridium manufactured by Spartan Steel Co., Compton, Calif., with the use of tungsten powder.

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Department of commerce reports that the Norwegian state railroads henceforth will buy all their rails from the Christiana Spigerverk, of Oslo, the latter using only Norwegian ore.

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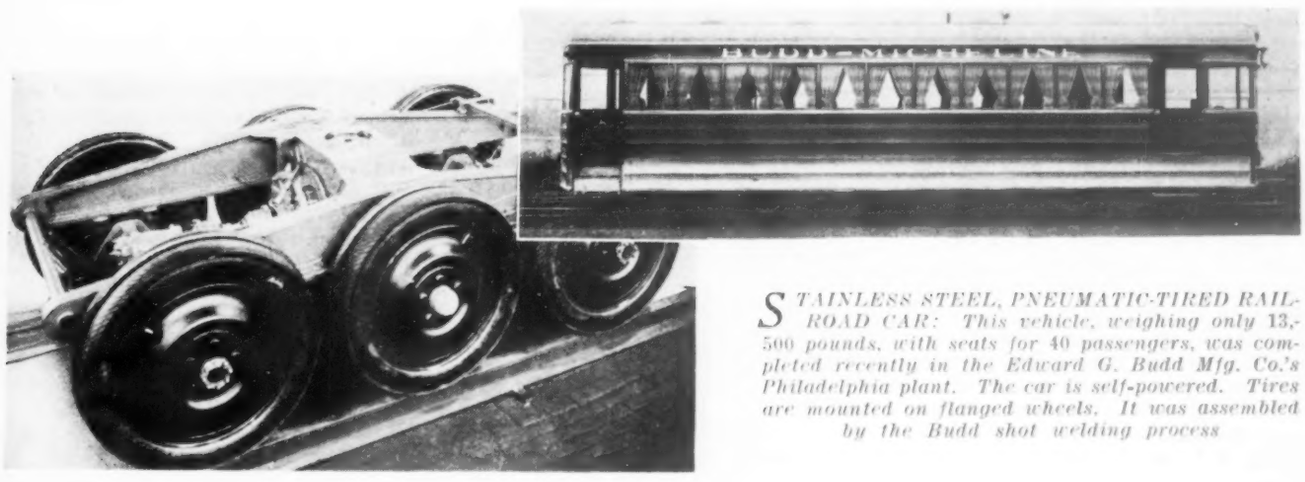
Direct unemployment relief by congress was killed when the senate defeated the La Follette-Costigan bill appriating $750,000,000, half to be earmarked for distribution by a federal board to the states for relief work and half to be allocated to the states for highway construction. It is thought no further direct relief legislation will be attempted.



STAINLESS STEEL, PNEUMATIC-TIRED RAILROAD CAR: This vehicle, weighing only 13,500 *pounds, with seats for* 40 *passengers, was completed recently in the Edward G. Budd Mfg. Co.'s Philadelphia plant. The car is self-powered. Tires are mounted on flanged wheels. It was assembled by the Budd shot welding process*

Industrial Men in the Day's News

Scott Turner, President, American Institute of Mining and Metallurgical Engineers

FOR the past six years he has been director of the United States Bureau of Mines.

SINCE graduation from college in 1904 his work has taken him to many parts of the world.

IN the presidency of the A. I. M. M. E., Mr. Turner succeeds Robert E. Tally.

SCOTT TURNER, director of the United States Bureau of Mines, Washington, was elected president of the American Institute of Mining and Metallurgical Engineers, New York, by mail ballot last week of the society's 9000 members. He will succeed Robert E. Tally, of New York and Arizona.

The new president of the 60-year old mining society was born in Lansing, Mich. He graduated from the University of Michigan in 1904 with a degree of engineer of mines. Since then his professional work has taken him to all parts of the world, where he has served on the operating and consulting staffs of many well-known companies.

At the outbreak of the World war, Mr. Turner was general manager of the Arctic Coal Co. in Spitzbergen. He negotiated the sale of the property to the Russian government, after narrowly escaping death when the LUSITANIA was sunk in May, 1915. When the United States entered the war, Mr. Turner served as a lieutenant in the United States navy.

He was appointed chief engineer of the Mining Corp. of Canada after he was placed on the navy's reserve list in 1919. In 1926 he came to the United States bureau of mines as director, succeeding Dr. H. Foster Bain. As director he is responsible for the establishment of the health and safety branch of the bureau, as well as for the economics branch.

Mr. Turner is a member of the Metropolitan club, the Cosmos club at Washington, and the Canadian Institute of Mining and Metallurgy.

HORACE HAMMOND, president, Hammond Iron Co., Birmingham, Ala., is succeeding the late Morris W. Bush as president of the Alabama By-Products Corp. Mr. Hammond, associated with Mr. Bush for 25 years, continues active in the Hammond company. Erskine Ramsay continues as chairman of the Alabama company.

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J. F. Welborn, chairman of the Colorado Fuel & Iron Co., is a member of the organization to set up the Reconstruction Finance Corp. in Denver.

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L. M. Johnston, formerly vice president of the A. M. Byers Co., Pittsburgh, has been elected president of the Keystone Driller Co., Beaver Falls, Pa., drilling equipment manufacturer.

E. C. Rebeske, formerly treasurer and secretary of the Union Drawn Steel Co., Beaver Falls, Pa., a subsidiary of Republic Steel Corp., Youngstown, O., has been elected vice president of the Keystone company. Other officers elected are R. R. Downie, secretary, and C. T. Smith, treasurer.

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R. H. Grove, for a number of years chief engineer for the Apollo Steel Co., Apollo, Pa., has resigned effective March 1. He plans to do some development and experimental work and then engage in business for himself.

Obituary notices and additional personals will be found on Page 56.

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W. J. Reeder has been appointed manager of the St. Louis branch office of the Bailey Meter Co., Cleveland. For the past seven years Mr. Reeder has been connected with the Chicago branch of that company.

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R. S. Schmieder, for 18 years connected with the Milcor Steel Co., Milwaukee, has become a member of the firm of the Super Steel Products Co., Minneapolis.

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Frank B. Lounsberry, vice president of the Ludlum Steel Co., has been elected president of the Dunkirk, N. Y., chamber of commerce.

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Charles L. Allen, president, and other officers of the Norton Co., Worcester, Mass., have been re-elected.

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W. A. Rosenberger has been appoint-

(Concluded on Page 56)

MIRRORS of MOTORDOM

DETROIT

FORD continues to issue releases on parts for the revised four and the new eight on which a final decision has been reached, but the small army of steel vendors which has been bivouacing in the purchasing reception lobby at Fordson had not captured any tonnage up to the end of last week.

No formal inquiry for finished steel prices has yet been issued; in fact, none is necessary inasmuch as Ford purchasing officials have been in constant touch with the market. Since it will require two weeks or longer for mills to roll and ship some needed material, the prediction it will be March before steel tonnage moves to Ford still appears good.

A few "hand made" new models may be available shortly, but it is not believed any general display will be possibe until late March. The most optimistic forecast is that about March 1 banks of parts will be adequate for beginning assembly on a small scale. There are 5500 suppliers of parts for Ford; there are more than that number of dealers to stock.

Everything points to a striking body design for the new Fords. Unquestionably, the streamline effect will be more pronounced than on any other low-price line, with the windshield slating, the rear curved, and the radiator of the V-type much like the new Lincoln.

Hint Ford Financing

Reports of an extremely favorable financing plan—for purchasers—are persistent. As low as $85 down, is one rumor, with the remainder payable in 2 years. The base price of the 4-cylinder model will be under $400, judging from Mr. Ford's recent utterances, while the interchangeable 8-cylinder engine may be priced only $100 higher than the four.

Chevrolet and all the Chrysler lines—this time with no exception for any one of the latter's subsidiaries—are the bulwark of automobile steel demand.

Chevrolet assembled about 1800 models a day last week at Flint. A better demand for the company's cars has been reflected from the field.

Chrysler Activity Marked

DeSoto is doing the best of all Chrysler lines. For 5-day operations, over 2500 models a week are coming from the lines. Dodge passenger assemblies have more than offset tapering truck assemblies. The Chrysler lines proper have sped up to average 225 jobs daily, 5 days. Judging from Chrysler Corp. activity, the elusive "corner" must have been turned.

Plymouth has been scaling down some on actual assembly, in view of the knowledge abroad that its revised cars, still embodying "floating power," will be announced shortly. The past two weeks have accounted for little over 500 units each week. But steel has been flowing into this Chrysler division for the improved cars.

Buick is producing only three days, reports of five to the contrary, and daily totals have not changed since week before last.

Four-fifths of the 1900-odd Pontiacs made last week were sixes. There is some speculation that Pontiac, being a six, could be groomed for Chevrolet's rung in the General Motors ladder if the embryo Fords grow up to seriously challenge Chevrolet into making a sweeping change.

Reo's new car may be expected any time, along with the Plymouth and the five Nash lines.

Lincoln, Graham, Cadillac and Pierce all have assembled by now most of their showroom orders. Last week each of these makers curtailed their schedules.

Hudson and Essex production is averaging 300 daily, 6 days a week. Packard is stepping up, mostly on the low-priced eight.

When workmen were seen preparing the old Studebaker plant in Detroit for activity last summer, rumors flew thick and fast on what the move signified. Instead of Studebaker coming back to Detroit, plans were under way for the production of the Rockne.

However, it was not until last week —some six months later—that assemblies did start here. For about two months now Studebaker has been making the "75" Rockne series at South Bend. Last week a few of the "65's" were put together at the old Detroit plant.

Plan Early Lake Season

DeVaux-Hall Motor Co., now having passed into the hands of Continental Motors Corporation, Muskegon, Mich., since last week's story about its proposed sale to Chrysler, will be operated by Continental. . . . . Indicating activity among the body plants, iron and steel scrap offerings to dealers this month will run approximately 50 cars from Briggs, 20 cars from Murray. . . . Hupp Motor Co., Detroit, is holding an auction, March 1 and 2 on all its machinery at Cleveland for making gears, rear axles, transmissions, differentials and motors. . . . Graham is trying out a new sales plan whereby the factory give financial aid to the dealers' salesmen. . . . Plans are already under way for an earlier than usual start of the lake scrap-carrying trade. . . . Hanna Furnace Co.'s active blast furnace here having been on basic, is stocking its output on Great Lakes Steel Corp. property at Ecorse; next to the Hanna stack is stocked foundry grades.

EDITORIAL

Market Research Is Job For Steelmakers

TODAY steelmakers are so deeply engrossed in the immediate problem of securing their share of available tonnage that they cannot be expected to give close attention to the broader aspects of successful merchandising. Sooner or later, however, they will recognize the importance—in fact, the necessity—of supporting the routine function of selling steel with a systematic plan of analyzing and promoting markets for steel.

The prevailing hit-or-miss method of merchandising the majority of steel products is lamentable. Every seller of finished rolled steel is wasting time, effort and money in developing certain markets because, aside from a few exceptions, there is no adequate machinery for investigating, appraising and promoting new uses for steel on an intelligent and economical basis. The cost of pioneering under the current method of independent action is far more costly than is necessary.

This must be apparent to everyone who is familiar with the attempts that have been made by steel companies and fabricators to develop steel houses. This market has been watched with covetous eyes for a decade or more. A number of exhaustive surveys have been made. Many fabricators, architects, and contractors and perhaps a dozen mill interests have explored the market thoroughly. Some of them have poured considerable money into pioneering work. Much progress has been made, but thus far it has not been very profitable. There has been too much unnecessary duplication of effort, too much repetition of the same mistakes, too little profiting from past errors, and not enough co-ordination in the work of those who are striving for a common objective.

Co-ordinated Work of National Bureau Would Cut Cost of Pioneering

Assume that instead of this unorganized, costly work, a co-ordinated plan of pioneering under co-operative auspices had been launched. Let us imagine what would have happened if at the outset the problem of the steel house had been entrusted to a national steel market research bureau, supported by the producers of steel suitable for steel house construction. Is it not likely that under such collective auspices, the results today would have been much more satisfactory and the cost far below that which has been incurred through independent effort?

The idea of a national research organization for the steel industry is not new. Several leading steelmakers have advocated it at various times. The proposal was revived again on Lincoln's birthday by Charles F. Abbott in an address at Santa Barbara before the steel men of California. Nor is co-operative research an untried experiment. It has been proved successful in a number of industries, and in the steel industry the limited experience with group research has been encouraging.

The most pretentious attempt at co-operative market development in steel is that inaugurated by the American Institute of Steel Construction. Starting in 1922 this organization laid a firm foundation for research by establishing fundamental engineering principles, bringing codes and specifications up to date, and arousing a consciousness for structural steel. Having won wide acceptance for its specifications, it developed new uses for steel, including "battle-deck" floors, steel curbing, steel highway guards, etc. Concurrently it placed district engineers in the field to serve as engineering ambassadors for steel construction. The tonnage of construction won for steel that would have gone to other materials had it not been for this group effort is tangible evidence of the efficacy of this method.

Developing Markets Is Function of Steelmaker, Not Customers

But the results would have been infinitely more satisfactory had this effort been fostered and supported wholeheartedly by those who derive the major benefits from it. The task of promoting the use of steel—structural or otherwise—belongs primarily to the steel producers. They, rather than their customers, should take the lead in developing markets.

A national research bureau, financed by dues from makers of shapes, bars, plates, strip, sheets and perhaps wire products, would prove a desirable adjunct to the merchandising activities of the steel industry. It could be operated effectively at a cost of not over 25 cents per ton of finished rolled steel and it would pay dividends far in excess of those of the most prosperous steel companies in their palmiest days.

THE BUSINESS TREND

Teamwork at Washington Encourages Business

A MORE buoyant spirit is abroad in the world of business. While it is derived largely from the expectation of beneficial results of the federal credit measures discussed recently in this column, it also is supported by a few tangible developments.

Among the latter are a fair increase in revenue freight car loadings in the week ending Feb. 6; a decided drop in the number of bank failures in the week ending Feb. 13; a slight decrease in the amount of money in circulation, indicative of a tendency to ease up on hoarding; a narrower recession in commodity prices generally and actual increases in wheat, corn, oats, cotton, copper, silver and rubber; continued progress in curtailing petroleum production; a sharp increase in the output of bituminous coal in the week ending Feb. 6; and a marked drop in commercial failures for the week ending Feb. 11.

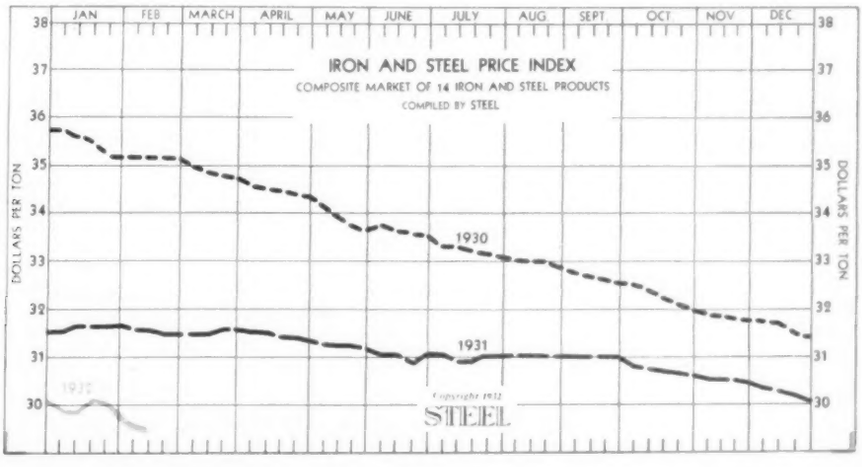
These scattered signs of betterment are far from conclusive, yet they lend a degree of strength to the belief that a faint improvement in industrial activity is in the making. Small orders, coming from everywhere and nowhere in particular, are reported by many manufacturers. There is a definite feeling in industry that more business is imminent.

However, the bulk of the encouragement comes from Washington. Business and political leaders today are in closer accord than at anytime in 10 years. Even more remarkable is the fact that congress is giving the nation an exhibition of teamwork, the like of which has been witnessed rarely in the history of the American republic. Both houses are displaying speed and demonstrating ability in handling legislation designed to meet the present emergencies.

Effect of Credit Legislation May Appear First in Railroad Purchases

The Glass-Steagall bill, which modifies the Federal Reserve act to enable the Reserve system to lend on paper not now eligible, will enable the effectiveness of the Reconstruction Finance Corp. which now is functioning and already has made loans. These are the principal agencies among a half-dozen or more that are being mobilized for a united drive against the depression.

Judging from the general outlook in industry and the prospects of relief from Washington, it is likely that the first marked impetus for greater activity in the steel industry may come from the railroads.



1931

Feb. 11	$31.69
Feb. 4	31.69
Jan. 28	31.73
Jan. 21	31.73
Jan. 14	31.73
Jan. 7	31.66

1932

Feb. 13	$29.57
Feb. 6	29.60
Jan. 30	29.60
Jan. 23	30.00
Jan. 16	30.08
Jan. 9	29.96

Steel Barrels End Year At Lowest Production

Production and shipments of steel barrels declined in November and December after the slight upturn in October, closing at the low for the year. Twelve months' total was appreciably under that of 1930. Comparisons follow:

1930	Production	Shipments	Unfilled orders within 30 days
Nov.	497,539	500,409	230,960
Dec.	412,283	406,327	188,902
Year	7,435,891	7,434,371	.....
1931			
Jan.	421,814	427,622	210,416
Feb.	450,134	449,485	231,738
March	550,583	554,332	242,626
April	591,399	600,566	253,622
May	610,788	618,801	248,138
June	552,955	549,781	239,290
July	580,565	581,450	238,258
Aug.	449,590	455,502	235,002
Sept.	451,562	452,960	205,676
Oct.	489,555	492,145	177,673
Nov.	453,547	444,201	182,740
Dec.	382,483	385,435	150,650
Year	5,984,975	6,010,280	.....

Enameled Ware in 1931 Showed Loss for Year

Lowest figures of the year were registered in November and December in enameled sheet metal ware, continuing the decline of preceding months. Totals for the year were somewhat under those for 1930, though the loss was not heavy. Department of commerce figures are as follows:

In Dozens

1930	Total	White	Gray and Colored
Nov.	263,365	79,719	183,646
Dec.	250,568	70,554	180,014
Year	3,526,299	1,200,624	2,325,675
1931			
Jan.	267,232	84,917	182,315
Feb.	289,205	96,812	192,393
March	312,916	103,375	209,541
April	281,339	99,218	182,121
May	264,953	106,091	158,862
June	232,672	81,588	151,084
July	246,858	83,483	163,375
Aug.	251,544	90,546	160,998
Sept.	307,068	97,635	209,433
Oct.	255,782	81,866	173,916
Nov.	197,080	62,904	134,176
Dec.	233,267	54,565	178,702
Year	3,189,916	1,043,000	2,096,916

Sheet Sales, Output and Shipments Up in January

Sheet sales, production and shipments gained in January, according to the National Association of Flat Rolled Steel Manufacturers, Cleveland. Daily average sales increased 22 per cent over December, to 3912 net tons output was up 17 per cent to 3836 tons; and shipments advanced 9 per cent to 3644 tons.

Sales for January totaled 121,258; production, 118,921 tons; shipments, 112,971 tons. Unfilled tonnage Feb. 1 was 126,508 tons, compared with 119,677 tons Jan. 1. Total sheet capacity in the United States for the month was 555,000 tons, and the capacity on which the foregoing figures are based was 381,550 tons.

Foundry Equipment Gains In Index for December

A slight rise in the index of foundry equipment orders was registered in December, although only August and November were lower. On the basis of 1922-24 as 100 the index for December was 26.3 compared with 17.2 in November. This is based on reports of 17 members of the Foundry Equipment Manufacturers' association and comparisons are as follows:

	1931	1930	1929	1928
Jan.	65.3	160.1	180.5	132.7
Feb.	54.7	196.4	197.0	123.6
March	174.4	164.1	209.4	138.6
Apr.	57.7	122.8	172.6	107.7
May	54.1	92.7	177.7	335.6
June	40.9	102.1	177.3	149.1
July	38.7	90.6	219.3	94.8
Aug.	16.9	85.2	229.5	278.0
Sept.	31.9	91.0	216.3	170.0
Oct.	44.8	50.0	245.3	185.0
Nov.	17.2	45.3	128.6	197.8
Dec.	26.3	59.8	208.0	166.5

Base: Average monthly shipments for 1922-23-24 taken as 100.

Electrical Orders Show Fourth Quarter Decline

Electrical orders dropped again in fourth quarter, though not as sharply as in the third. Orders, including motors, batteries, domestic appliances and industrial equipment, were $151,586,124 for the quarter the smallest for two years. Department of commerce figures are as follows:

Quarters	1931	1930
1st	$182,485,841	$314,329,372
2nd	224,347,794	292,902,071
3rd*	157,305,909	228,732,926
4th	151,586,124	208,935,443
Total	$715,723,668	$1,044,899,812

*Revised.

A galvanizing and corrugating plant for production of galvanized sheets is being erected at Shanghai, China, with capacity for galvanizing 30,000 to 40,000 tons per year.

Electrical Trucks Gain In December Shipments

December shipments of electrical industrial trucks and tractors were slightly larger than for November and also for October, though those two months are the only ones with a smaller total. For the year the total was slightly over half that for 1930. Comparisons from the department of commerce are shown in the following:

1930	Total	Shipment— Domestic	Export
December	51	42	9
Year	1,191	1,050	141
1931			
January	38	33	5
February	56	50	6
March	93	84	9
April	71	48	23
May	69	69	.....
June	75	50	25
July	78	63	15
August	50	37	13
September	43	39	4
October	17	16	1
November	21	19	2
December	22	21	1
Year	633	529	104

Mechanical Stokers Go To Year's Low Point

Sales of mechanical stokers in November and December continued the decline of earlier months and ended the year at the low. Total for the year was below that in 1930, though not by a wide margin. Department of commerce comparisons are presented below:

1930	Stokers sold	Fire tube boilers	Water tube boilers
November	71	41	30
December	53	35	18
Year	1,179	589	590
1931			
January	85	40	45
February	66	37	29
March	63	27	36
April	65	32	33
May	80	29	51
June	111	55	56
July	101	58	43
August	132	59	73
September	96	56	40
October	83	47	36
November	62	38	24
December	48	32	16
Year	988	510	478

Lincoln Electric Co., Cleveland, has been given a contract for 28 motors to drive ventilating fans in the new East Boston traffic tunnel. Motors will be all welded steel construction, rated at 50 horsepower at 450 revolutions per minute, and 6¼ horsepower at 225 revolutions.

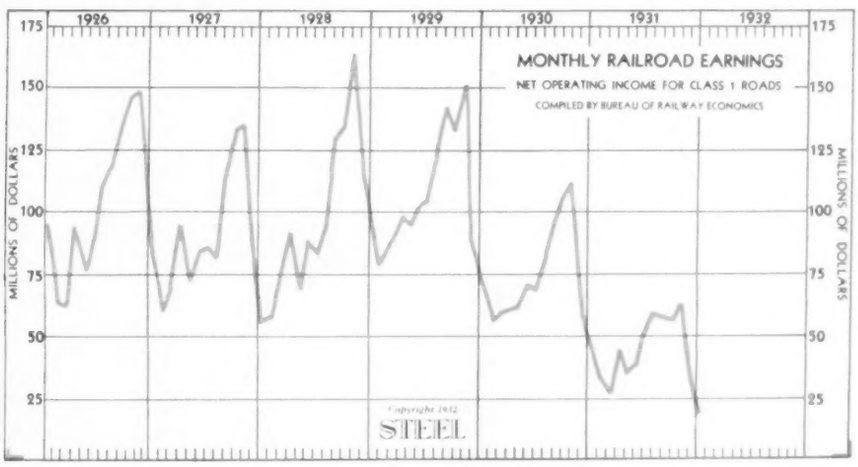
	Per Cent
Jan., 1932	59.2
Dec., 1931	54.3
Jan., 1931	65.3

Machine Tool Orders Gain Slightly; Shipments Drop to New Low

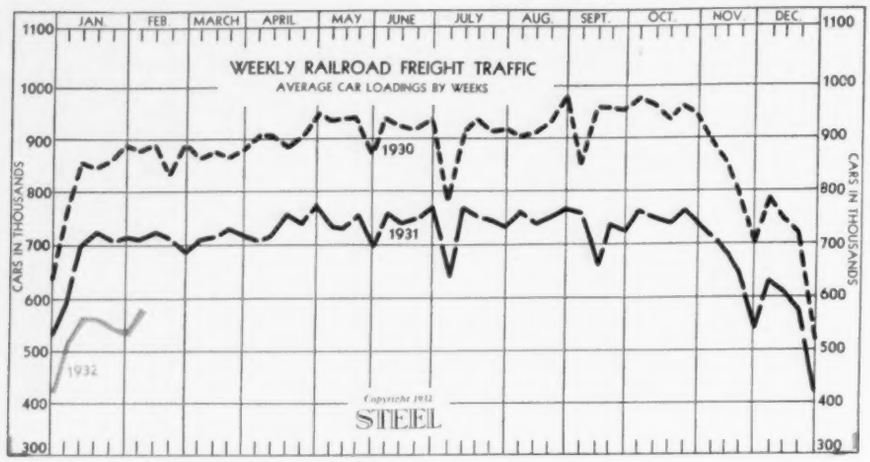
According to the compilation of the National Machine Tool Builders' association, the three months' moving average of machine tool orders advanced from 54.3 in December to 59.2 for January. The gain, however, does not carry the index to the level of January last year, when average gross orders were 65.3. In January the index of shipments dropped to 46.7, the lowest rate of which the association has record—from October, 1925, and a little over half the average rate of 81.0 reported for the entire year of 1931. The index of unfilled orders for January rose to 108.2 compared to 104.1 for December and 178.7 for January last year. At the January low rate of shipments the reporting group have a little over two months orders ahead.

Railroad Earnings Continue to Slide; Total for 1931 Is New Low

For the month of December, 1931, the net railway operating income of class I railroads amounted to $21,263,164, which was at the annual rate of return of 1.29 per cent on their property investment. The peak for 1931 occurred in October with a net income of $64,020,077 while in November earnings dropped to $37,064,372, or 1.68 per cent. In December, 1930, net railway operating income was $49,330,478 or 3.06 per cent. Total net income for 1931 amounted to $531,095,960 or 1.98 per cent on their property investment compared to $884,856,141 or 3.36 per cent in 1930. This reduction resulted from a decline in traffic largely due to business conditions that existed during the year.



Dec., 1931	$21,263,164
Nov., 1931	37,064,372
Dec., 1930	49,371,769



	1932	1931
Feb. 6	574,756	719,053
Jan. 30	561,157	719,397
Jan. 23	562,938	715,454
Jan. 16	573,276	691,753
Jan. 9	572,504	712,128
Jan. 2	503,325	614,860

Freight Car Loadings Recover Loss of Previous Week

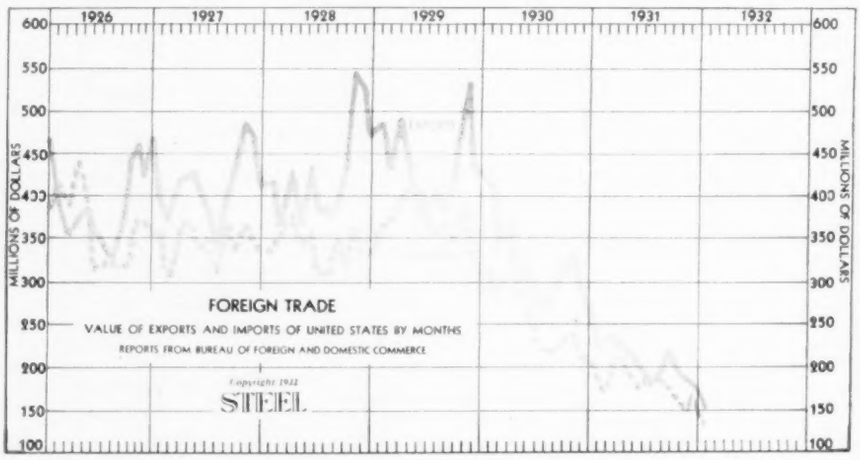
Loadings of revenue freight for the week ending Feb. 6 totaled 574,756 cars according to reports from the car service division of the American Railway association. This is a gain of 13,599 cars over the preceding week, but 144,297 cars below the corresponding week in 1931 and 311,945 cars under the same period two years ago. Coal loadings contributed largely to the gain shown this last week with a total of 128,630 cars, an increase of 20,469 cars, but 10,086 cars below the corresponding week last year and 62,228 cars under the same week in 1930. Slight reductions in shipments of ore, grain, forest products and less-than-carload shipments were reported.

January Foreign Trade Drops To Prewar Level

Merchandise exports and imports of the United States in January dropped sharply from December levels. According to the bureau of foreign and domestic commerce, exports in January were valued at $150,000,000, being the smallest for any month since July, 1912, and the smallest for any January since 1910. January ended with a favorable trade balance of $14,000,000 in favor of the United States only because imports fall to $136,000,000—the smallest for any January since 1911. January exports compared with $183,578,000 in December, 1931, and $249,646,000 in January of last year. Imports compared with $152,940,000 in December and $183,132,000 in January, 1931.

Exports	
Jan., 1932	$150,000,000
Dec., 1931	183,578,000
Jan., 1931	249,598,000

Imports	
Jan., 1932	$136,000,000
Dec., 1931	152,940,000
Jan., 1931	183,148,000



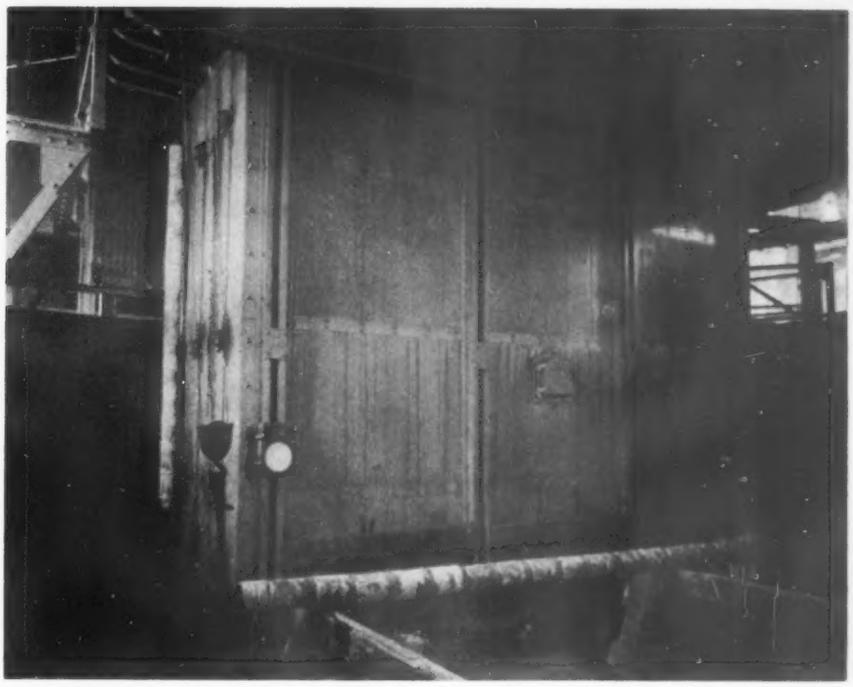


Fig. 1—Vertical-type gas-fired oven for drying ladle stoppers. A green stopper just assembled may be seen in the foreground while another ready to enter the oven for drying is shown at the left suspended from the hoist. Difficulties such as running stoppers and burned-off stopper rods have been almost eliminated with vertical drying

Improves Ladle Stoppers by Drying in Vertical Oven

BY L. F. REINARTZ
Works Manager, American Rolling Mill Co.

A STUDY of factors involved in properly drying and handling ladle stoppers in the open-hearth department of the American Rolling Mill Co., Middletown, O., recently led to the design of a drying oven in which the stoppers are handled in the vertical, or natural working position, from the time the green stopper is completely assembled until it is finally installed in the ladle. In former practice, the stoppers were laid in the oven in a horizontal position on skids and rolled through.

The horizontal method of handling and drying necessarily subjected the stoppers to rough treatment, bending and breaking, so that it was practically impossible to produce a stopper which was in perfect condition when it left the oven. Bowed stoppers and broken brick caused considerable operating difficulty, all of which has been eliminated by the vertical-type drying oven.

The new drying oven is of the conventional plate shell construction with structural buckstays. The side wall lining consists of 4½ inches of Sil-O-Cel brick next to the shell and inside of this a 9-inch wall of firebrick. The roof is constructed of a 9-inch arch of firebrick on top of which is a 3-inch layer of C3 Sil-O-Cel concrete. The charging and exit ends of the oven each are provided with four hinged doors to permit entry or removal of a stopper.

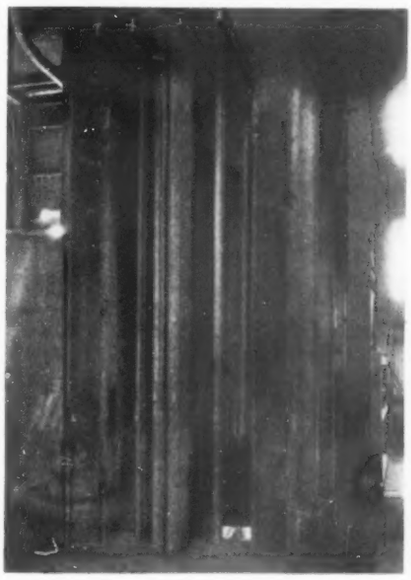


Fig. 2—Discharge end of oven with doors opened. Stoppers are suspended from the rails at the top

This construction conserves considerable heat, which otherwise would be lost each time a stopper was charged into or removed from the oven. The doors are of steel plate and angle construction and are lined with C3 Sil-O-Cel concrete. Fig. 2 shows the doors at the discharge end opened, and gives a good view of the stoppers hanging in the oven. Fig.

1 shows the doors at the entrance end in the closed position with a green stopper hanging on the trolley ready to be pushed into the oven.

Approximate inside dimensions of the oven are: Width 5 feet, length 17½ feet and height 16½ feet. Each stopper, therefore, travels a comparatively long distance through the oven which insures its remaining in the drying process a sufficient length of time to become perfectly cured. Means for conveying the stoppers through the oven are provided by four trolley beams extending through the oven and sloping slightly toward the discharge end.

Heat for drying is provided by natural gas burners located underneath and at the rear of the oven and discharging into a combustion chamber, the top of which consists of cast-iron plates extending from the rear to within approximately 18 inches of the front of the oven, as shown in Fig. 3. The products of combustion enter through the opening thus provided, circulate through the oven, and finally pass out through a stack located on top at the rear. By automatic control of the burners, the temperature of the oven is uniformly maintained at approximately 325 degrees Fahr. At the rear of the oven, Fig. 3, is provided an electric hoist for picking up the green stoppers and charging them into the oven. Since it was impossible to locate the unit so that the cured stoppers could be taken directly from the trolleys by the traveling crane, it was necessary to provide some means for transferring them to a position where the crane could pick them up and transport them to the ladle for installation. To accomplish this, a jib crane was designed embodying a working platform and carrying on its top four short trolley beams to connect with the four beams extending from the oven. Fig. 3 shows this crane in both the loading and unloading positions.

An understanding of the operating procedure reveals the superiority of this oven over the horizontal type. Stoppers are made up in the usual way on horses in a working area located along side the drying oven, bins for different sizes and types of stopper brick and heads being provided in a convenient location. After the stopper is made up in a horizontal position, as shown in Figs. 2 and 3 it is picked up by an electric hoist and raised to a vertical position.

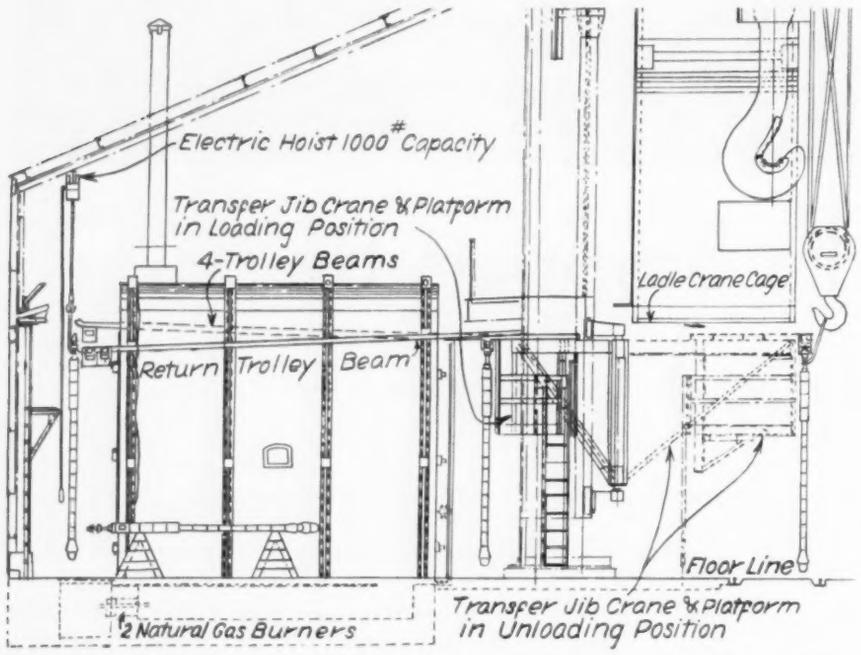

Electric Hoist 1000# Capacity
Transfer Jib Crane & Platform in Loading Position
4-Trolley Beams
Ladle Crane Cage
Return Trolley Beam
Floor Line
2 Natural Gas Burners
Transfer Jib Crane & Platform in Unloading Position

Fig. 3—A cross-sectional view of the vertical stopper drying oven showing charging hoist and special jib crane for unloading

The operator then mounts the working platform, shown at the left in each illustration, and removes from the return trolley beam an empty trolley, which is light enough to be handled easily by hand, and places it on one of the four trolley beams which extends through the oven. He then transfers the stopper from the electric hoist to the trolley and locks it in place by means of a simple hook device. The electric hoist then is detached, the oven door opened, and the stopper is pushed in the oven. As new stoppers are entered, the partially cured stoppers are pushed toward the exit end.

Since four trolley beams are provided, it is possible to keep the different sizes and types of stoppers separated. This is an important feature, for it enables the operator to remove any desired size or type of stopper from the oven without disturbing any of the others.

These four trolley beams each have a capacity for approximately 25 stoppers, making a total oven capacity of 100 stoppers. By this arrangement of trolley beams, the oven becomes a continuous unit in which green stoppers are charged in at the rear and cured stoppers are removed from the front. The time of travel for a stopper through the oven is from 3 to 4 days.

When it is necessary to remove a stopper from the oven, the jib crane is swung into position with its trolley beams matching those extending from the oven and is locked in this position. The operator mounts to the working platform on the jib crane, Fig. 3, opens the door of the compartment from which a stopper is to be removed, pulls the stopper out on to one of the jib crane trolley beams, and closes the oven door. Each jib crane trolley beam has notches cut in the lower flange for the wheels of the trolley to drop into, thereby preventing the trolley with its stopper from running off the beam while the jib crane is being moved into position.

Transferred to Ladle Crane

When the stopper trolley has been transferred to the crane beam and is securely locked, the operator swings the crane into the unloading position, indicated in Fig. 3, where the traveling crane picks up the stopper by means of a short cable and transfers it to the ladle for installation. With the stopper thus removed from the jib crane, the operator swings the crane back to a position from which he can remove the trolley and place it on to the return trolley beam alongside of the oven, on which it coasts back to the rear.

Experience has proved this oven to be a great improvement over the old horizontal-type unit. Seldom is more than one man required to operate the oven for all heavy lifting has been eliminated. Fuel consumption is economical because of good insulation and the fact that design is such as to give exceptional efficiency in drying. The most important feature of this oven, however, is that from the time the assembly of the green stopper is completed until it is finally installed in the ladle it hangs in a vertical position. This feature insures that the stopper will remain straight, all joints between brick will be tight, and no brick or heads will be broken in handling.

Because of the high quality of stoppers produced with the vertical-type drying oven, the usual difficulties such as running stoppers and burned off stopper rods have been practically eliminated. Out of 4481 heats poured during 1930 and 1931, only 13 showed running stoppers.

Industry Needs Production Control and New Markets

ASSERTING that the great industrial problem of today and of the future is to develop additional markets and to regulate production to demand, Robert E. Tally, retiring president of the American Institute of Mining and Metallurgical Engineers, at the annual banquet in New York, last week, stressed particularly the need for co-operative action on the part of individual members of an industry. With specific regard to price cutting, he declared that while commodities cannot be stabilized at fixed prices, particularly in the major industries, reasonable maximum and minimum limits can at least be accomplished.

"It must be clear," he concluded, "that individual members of an industry who cannot adjust themselves to a fair, practical and broad-minded attitude of co-operation must eventually step aside for more progressive and enlightened leadership."

The meeting of the institute, its 141st and held Feb. 15-18 in New York, was attended by 1500. The Robert W. Hunt prize was awarded to Howard Scott, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., for his paper on "Transformational Characteristics on Iron-Manganese Alloys." Ora E. Clark, blast furnace superintendent, Hamilton Coke & Iron Co., Hamilton, O., received the J. E. Johnson Jr. award for meritorious research and contribution to the professional literature of iron and steel.

New Officers Elected

Scott Turner (see page 16), director of the bureau of mines, Washington, was elected president. Newly elected vice presidents are H. N. Eavenson, consulting engineer, Pittsburgh, and H. A. Guess, vice president, American Smelting & Refining Co., New York. New directors are Louis S. Cates, president, Phelps Dodge Corp., New York; Karl Eilers, consulting engineer, New York; S. R. Elliott, general superintendent, Cleveland-Cliffs Iron Co., Ishpeming, Mich.; H. G. Moulton, consulting engineer, New York; and William Wraith, Inspiration Consolidated Copper Co., New York.

A new feature this year, of special interest to the iron and steel industry, was a symposium on gases in metals. The diverse ways in which dissolution of gases affect the properties of both molten and solid metals came in for special investigation, and the nine papers presented were, in a broad sense, in the nature of reports.

Discussing certain effects of temperature and iron oxide in the manufacture of basic open-hearth steel, W. J. Reagan, Edgewater Steel Co., Oakmont,, Pa., declared that the percentage of iron oxide in the metal is in proportion to the iron oxide of the slag, and can be controlled by proper melting and working conditions. Fast melting and slow working or refining, he said, keeps the iron oxide at a minimum.

The speaker stated that the percentage of iron oxide in the slag, and in the metal, plus the temperature, determines the percentage of residual manganese in the steel. Low iron oxide and high temperature mean a saving in final manganese additions to the open-hearth furnace. Automatic furnace control that will actually control furnace atmosphere, and also combustion conditions, will be a long step toward control of iron oxide and open-hearth rejections, Mr. Reagan concluded.

Vacuum Melting Discussed

Wilhelm Rohn, director, Heraeus Vacuumschmelze, A. G., Hanau, Germany, observed that the technique of vacuum melting has been developed far enough to be introduced now for special purposes. He thought that perhaps steels and alloys for special and highly important parts, such as blading for turbines, tubing for superheaters for the highest pressures and temperatures, and parts of airplanes, soon may be produced by vacuum melting. To start the melting in a vacuum furnace with cold charges would be too expensive, he declared; however, he thought there would be advantages in starting such furnaces with molten metal, so as to carry out the refining processes by the vacuum melting method.

Determination of oxygen, nitrogen and hydrogen in steel was discussed by J. G. Thompson, metallurgist, bureau of standards, Washington. He concluded as to the determination of oxygen that complete information for a research investigation, if it can be obtained at all, usually can be obtained through the use of a combination of two or more different analytical methods.

As to the determination of nitrogen, two methods are in common use, namely, the solution-distillation methods for combined nitrogen and the vacuum fusion method if uncombined nitrogen or certain refractory nitrides are present. The determination of hydrogen, if desired, can be included with the other determinations in the vacuum fusion method.

The effect of inclusions and their solubility and control in cast steel were discussed by C. E. Sims and G. A. Lillieqvist, research metallurgists, American Steel Foundries, Indiana Harbor, Ind. It was concluded that a direct relationship exists between the character and distribution of inclusions in cast steel and the ductility of such steels; also, that the globular type of inclusion scattered haphazardly through the steel has the minimum effect on the physical properties.

Other conclusions were that the eutectic inclusion preforms a network in the steel and causes the steel to rupture after slight plastic flow with resultant low ductility; that the variations in quantity of inclusions ordinarily found in steel have almost no effect on the physical properties; and that the normal inclusion-forming material of steel is soluble in the molten state and precipitates as inclusions at the time of solidification.

Controlled by Iron Oxide

It was also contended that if the iron oxide content of the steel is high, the inclusions will precipitate at the beginning of the solidification and will exist as globules of silicates and sulphides, and the steel will have good ductility. If the iron oxide content of steel is too low, the solubility of the sulphides, it was contended, is increased to such an extent that they will precipitate as a eutectic with the last steel to freeze. The ductility of such steel will be low.

B. M. Larsen and T. E. Bower, research laboratory, United States Steel Corp., Kearny, N. J., presented results of a preliminary study of an improved Ledebur method, with indications that "diffusible oxygen" can be determined within 5 to 10 per cent of the amount present in this form. They believed that the method may have some practical importance since it appears that this so-called diffusible oxygen is more likely to exert a significant influence upon the properties of steel than that contained in the almost insoluble, indiffusible inclusions.

Committees of Testing Society To Meet

Standing committees of the American Society for Testing Materials will hold their annual spring group committee meetings in Cleveland, beginning Monday, March 7 and extending through Friday, March 11. In conjunction with these gatherings will be the third regional meeting of the society, Wednesday, March 9, at Hotel Cleveland, featuring a symposium on rubber.

Electrohydraulic Operator Has Many Applications

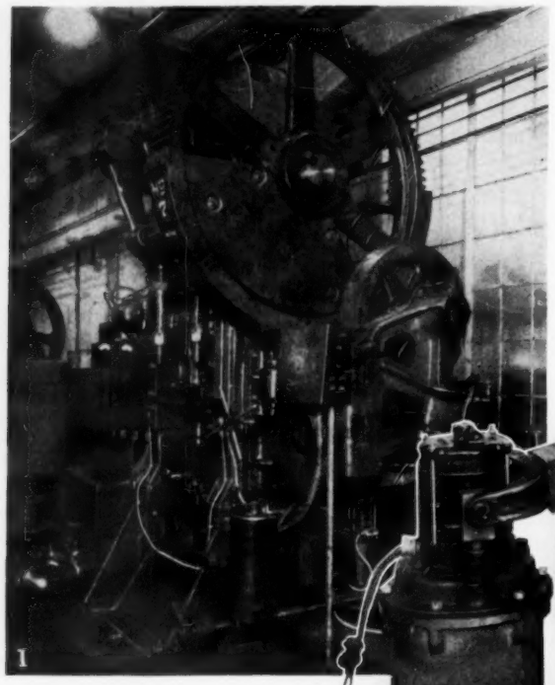
WHERE a smooth straight-line thrust in one direction through a definite distance is desired, on shop equipment, the electrohydraulic operator or thrustor, manufactured by the General Electric Co., Schenectady, N. Y., is particularly adaptable, and numerous applications of this unit are being operated successfully throughout the steel and allied industries. The device consists essentially of a piston which provides the thrust, actuated by oil pressure supplied by a small oil pump impeller. A fractional-horsepower motor drives this pump and as long as the motor is in operation the piston is held at the top of its stroke; but when power is interrupted to the motor the piston returns to the bottom of the stroke.

Accompanying illustrations show four applications of the electrohydraulic operator. No. 1 is a 175-ton single-crank toggle drawing press with friction clutch, the operator being applied to control the clutch rod and the hand lever being disconnected. The control may be seen in the lower right of the illustration. Two pushbuttons are connected in series to energize the thrustor, requiring the workman to use both hands to run the press, thus keeping his hands clear. Release of either or both buttons de-energizes the motor of the electrohydraulic generator and sets the brake.

Illustration No. 2 shows the operator applied to a standard spring set brake. The brake is released when the unit is energized and is set by de-energizing the motor of the unit, which releases the spring. The motor driving the operator cannot be overloaded regardless of any setting of the spring that would apply load to the unit. This smooth action in setting the brake is a desirable feature where loads are raised and lowered.

An application to a wire strander is shown in illustration No. 3, the operator unit being at the right. Wire is drawn from the small spools to form a cable and, when the machine is stopped, it is necessary to avoid breakage of the fine wires that make up the cable. The smooth action of the operator stops the machine satisfactorily.

The electrohydraulic operator supplies pressure for welding in the installation shown in illustration No. 4, eliminating the old-style foot lever. Fatigue of the workman is minimized and the same pressure is applied to each weld.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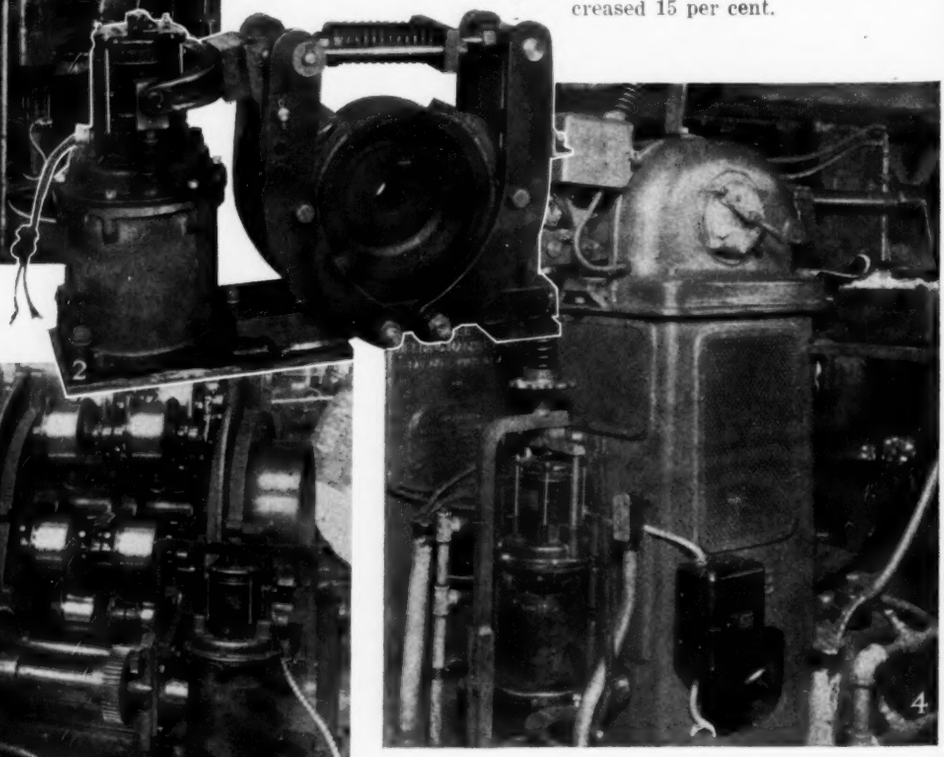
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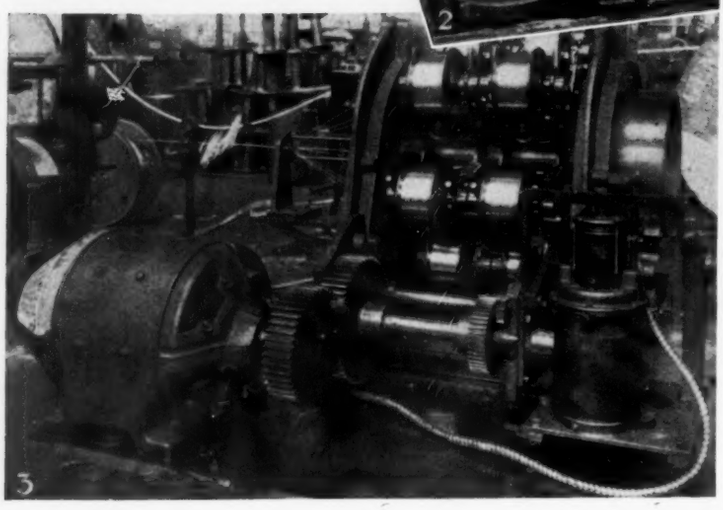
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Make Less Electricity

Preliminary estimates of production of electricity for public use in 1931 are 91,679,000,000 kilowatt hours, or 4 per cent below 1930. Use of coal and oil for fuel in steam generating plants in 1931 declined 10 and 13 per cent, respectively, that of natural gas increased 15 per cent.

A Certain Shovel Specification Is "Tough"....

But One Manufacturer Has Learned How to Meet It

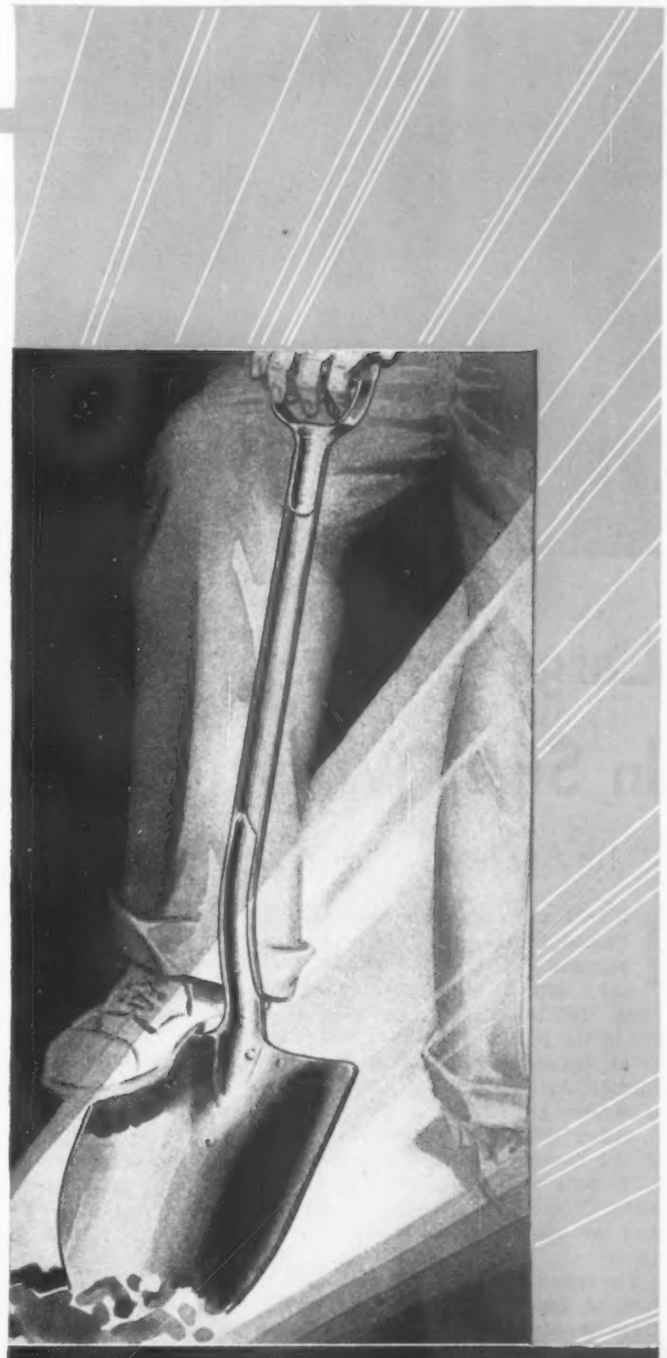
A WELL-KNOWN maker of shovels was unable to meet the severe specifications of a certain railroad. The production department was resigned to the belief that the specification could not be met with the regular shovel steel which they had in stock.

But, before abandoning the regular stock and ordering new steel of another analysis, the shovel producer sought the assistance of Republic Metallurgists. Tackling the specification with an experience gained in the study of hundreds of metallurgical problems, Republic Metallurgists soon solved the problem. They developed a treatment of heating, quenching in a hot medium and air cooling, which enabled them to retain the required ductility, with fairly high hardness.

The manufacturer was saved the cost of new steel and acquired a heat treating practice which measurably bettered his product.

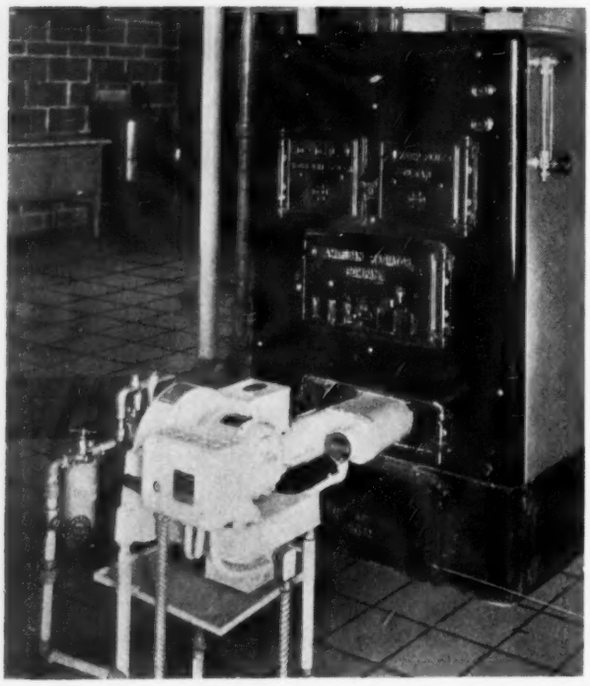
Perhaps you, too, have a specification which is giving you some difficulty. Perhaps you are considering changing the analysis or the analyses of some of your steels. Republic Metallurgists will be glad to co-operate with you in the selection of steel for a definite purpose or in the development of better heat treating practice.

Data of help to every buyer and user of alloy steels is contained in the new edition of the Agathon Alloy Steels Handbook. Write for a copy.



CENTRAL ALLOY DIVISION
REPUBLIC STEEL CORPORATION
Massillon, Ohio

AGATHON ALLOY STEELS



Courtesy, Bettendorf Mfg. Co.

◆

TYPICAL domestic oil burner attached to furnace. This unit contains 20 pounds of steel. The oil burner industry has had a remarkable growth in the past ten years, and now absorbs, for all types of burners, tanks and piping about 100,000 tons of steel a year. The burner illustrated is entirely automatic, operated by electric motor in connection with thermostat

◆

Large Uses of Steel In Small Ways

211th Article ◆ Oil Burners

IN 1921 only 12,500 homes in the United States were heated by oil burners. Today the number is 774,500. Annual sales have increased from 9100 to 126,000, averaging 115,000 in the past four years. According to an estimate by the American Oil Burner Association Inc., New York, sales were slightly larger in 1931 than in either 1930 or 1929. Forty per cent of the domestic burners are installed in Illinois and New York. States in which it is more economical to burn coal or gas have relatively few of them.

The scarcity of domestic burners and lack of general knowledge regarding them in some localities make it advisable to explain that they are devices for burning oil in furnaces. About one-fourth of them are used in connection with warm air furnaces (STEEL, Jan. 25, 1932). Domestic cooking stoves and portable oil stoves for heating purposes, in which oil is fed through wicks, are not generally classed as oil burners.

The amount of steel used in these units is comparatively small, averaging only about 20 pounds, compared with 60 pounds of cast iron. Yet in the aggregate, 1150 tons of steel is consumed in a year's production. A much larger amount of steel is used for the oil storage tanks and piping in those installations. The tanks average 400 pounds No. 12 and No. 14 gage steel, the total amount of steel consumed annually in their manufacture being 23,000 tons. Piping averages 200 pounds, making a total of 11,500 tons, though a considerable proportion of this is wrought iron or copper tubing.

Wide Commercial Use

Commercial oil burner installations —for heating hotels, office and apartment buildings—have increased in ten years from 4000 to 42,400. They are being installed at the rate of 3000 a year. The amount of steel in each of these is larger than in the units for small homes; tanks have greater capacity, and more pipe is used. An estimate by the technical department of the Oil Burner association places the total amount of steel consumed annually in the manufcature of burners, tanks and piping for domestic and commercial installations at 48,000 tons.

Yet this does not represent all the steel being absorbed by this rapidly growing industry. Many burners are installed in industrial plants, in locomotives and ships. Portable burners are used in innumerable ways. Many variables are involved, due to different burner and installation characteristics, making it more difficult to obtain specific data regarding the amount of steel used, but the association estimates it is considerably in excess of that used for domestic and commercial installations. From this and other information, it seems probable that at least 100,000 tons of steel is consumed annually in the production of oil burner equipment.

The enormous strides noted in the domestic field in the past ten years have been due to the perfection of burners, making them safe, economical and entirely automatic. Before the advent of the automobile, consumption of kerosene was larger than that of gasoline and the price of the former was higher; now that there is a larger demand for gasoline than kerosene the latter is the cheaper. This has stimulated the consumption of oil until last year 1,500,000,000 gallons were used for domestic heating purposes.

Competes with Other Fuels

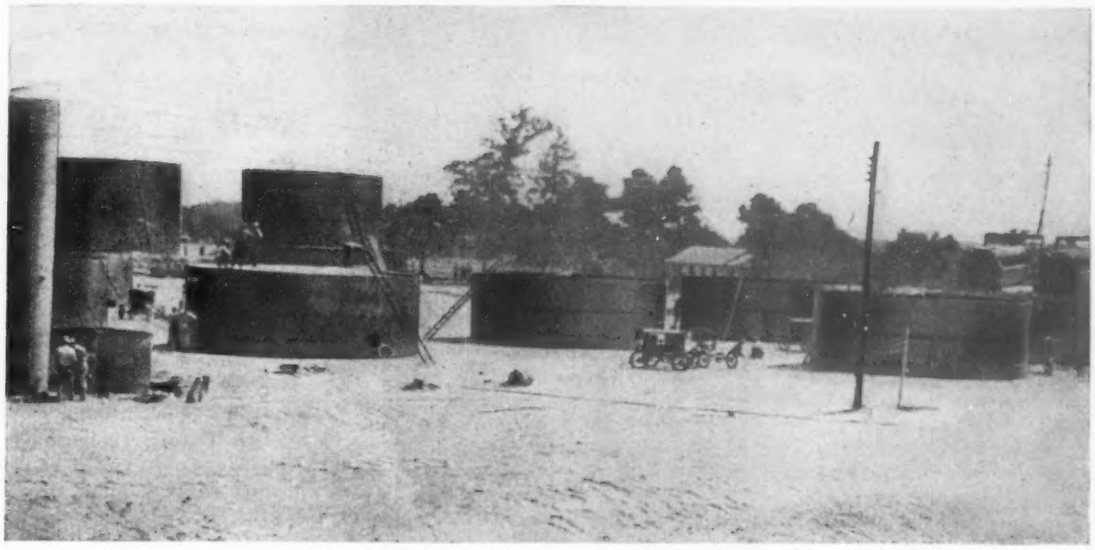
Manufacturers of these units claim that oil consumption at prevailing prices is equivalent to burning coal at $7.50, for the same number of heat units. It is competitive with gas at or above 30 cents per 1000 cubic feet. As these manufacturers prefer that their burners be used in connection with steel furnaces, employing boilers, instead of furnaces with cast iron fire pots, this should encourage the use of steel for furnace construction.

The oldest type of burner was that in which oil was dropped on a hot steel plate, the heat vaporizing the oil before combustion. This type is becoming obsolete. Low-pressure vaporization was next developed, various means being employed for forcing oil and air into the furnace in the form of a fine spray. The most modern development is high-pressure atomization, oil and air being fed into the furnace under pressure of 85 to 300 pounds, both being given a swirling motion in passing out of the nozzles, generating a gas which burns with an intensely hot flame. In some burners steam is injected instead of air, and in a few air and steam are interchangeable.

Unlike coal and many gas-fired furnaces, the modern oil burner does not burn the fuel continuously while in use, but only as required to maintain a certain degree of temperature. A thermostat calls for heat, closing a relay; the relay starts a motor and energizes a high-tension transformer which creates a spark to ignite the vapor. At the same time a fan attached to the motor starts delivering air; the oil pump, being on the same shaft, sprays in oil.

When the thermostat registers sufficient heat the motor stops, the flame goes out, and the mechanism is all set for the next call. Thus the burner operates intermittently; the heat generated in the furnace and refractory

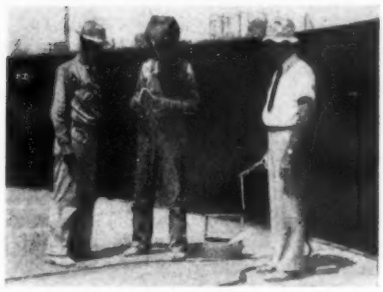
Large oil-storage tanks can be successfully welded



All-welded tank farm constructed by the Wyatt Metal and Boiler Works

Look at this record—*made with the new G-E arc welders and electrodes.*

One of seven new Type WD-24-400-ampere welders used in this installation



Interior of welded tank in course of construction

CONSTRUCTING 80,000-barrel storage tanks without a single rivet — that's what the Wyatt Metal and Boiler Works in Dallas, Texas, is doing with General Electric arc welders and welding electrodes.

The high-speed, high-quality welds of the new Type R, flexible-coated welding electrode, and nine Type WD arc welders, made possible the construction of 16 storage tanks — totaling 200,000 barrels capacity — in the record time of 45 days.

Arc welding is *going places* in every division of the oil industry. Are you making full use of this modern tool? Before you buy any welding equipment investigate the new G-E arc welding sets and the new G-E flexible-coated electrode, Type R. Just call the G-E office near you.

JOIN THE "G-E CIRCLE"—SUNDAYS AT 5:30 P.M. E.S.T. ON N.B.C. NETWORK OF 54 STATIONS—WEEK-DAYS (EXCEPT SATURDAY) AT NOON

530-121

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

lining and the boiler continuing to radiate for a considerable time.

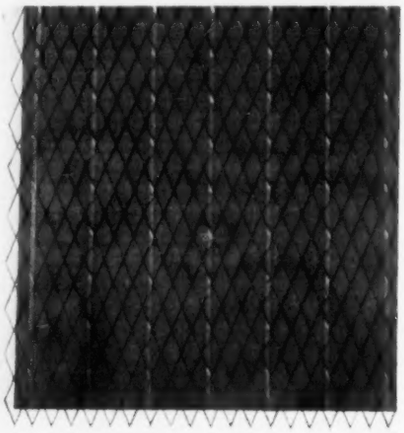
Protective devices are used to avoid the danger of building up a powerful pressure of vapor in the furnace in the event it is not ignited in the first instance, or the flame is extinguished from any cause while air and oil are being blown in. A simple one comprises a diaphragm, actuated by radiant heat, and which in turn controls electric contact points. Should there be no flame in the furnace this immediately operates to shut off the motor, and consequently the fuel supply. On some large and elaborate installations this control is considered so important that photoelectric tubes and amplifiers are used.

As complicated as such a system of fuel combustion may seem for the average small home the majority of the units have been made so simple, so positive and safe in operation that they pass the underwriters' inspection, and are considered among the best mechanical methods for efficient heating. There are many types, nearly all applying the same general principles of low or high pressure vaporization.

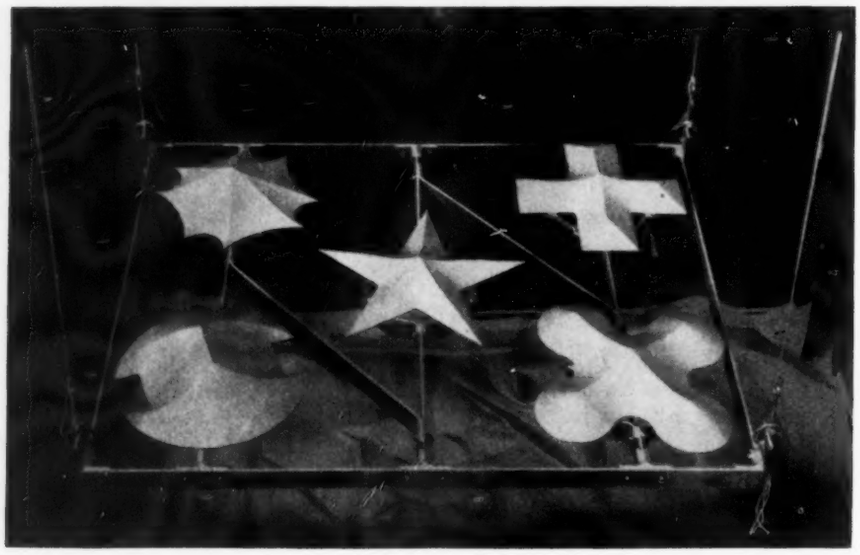
In the typical installation illustrated, all of the units are compactly assembled. Base and frame are cast iron; cover plates and much of the interior machanism, steel.

Design of Paper-Backed Plaster Base Is Improved

Since publication on page 34, STEEL, Nov. 23, of a description of a new paper-backed plaster base of expanded metal, it has been learned that manufacture of this product has been taken over by the Truscon Steel Co., Youngstown, O., and that several improvements have been made in the material. Now known as "insulmesh," the plaster base comprises an expanded metal mesh made from 22-gage steel sheets fastened by strips of adhesive to a specially treated waterproofed backing that is claimed to insulate against heat, cold and sound.



The adhesive strips serve merely to hold the mesh in place until the sheets are erected, after which the nails or staples used to attach the material to studs or joists carry the load. Thus, puncturing of the insulation before attaching is obviated. Improvements have been made in the insulating backing, the material being heavier, consisting of two flat sheets which form the chords of a truss, with a corrugated center section forming the web member. As shown in the illustration, the diamond mesh extends beyond one side and end of the backing so that the metal laps at all joints. Sheets of the material are 27 x 48 inches in size and are cut to shape readily with ordinary tin snips. Packed in cartons of 25 sheets, the product is supplied with the steel mesh either painted or galvanized.



SAND DEMONSTRATES PLASTIC FLOW IN STEEL: By burying small disks of different cross section in sand and lifting them with their individual loads, Dr. A. Nadai, research engineer, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., purports to show what happens inside a steel bar when it is twisted. As gravity causes the excess sand to fall from each disk, it is seen that the remaining portion assumes a shape exactly like a pattern of "slips," the slope of which represents the distribution of torsional stresses in a shaft represented by the cross section disk. This study is aimed to improve control of forging and rolling processes

Welding Equipment Makers Organize Association

To increase the use of resistance welding through dissemination of accurate information as to its possibilities and to have welding apparatus and service of high quality always available, five manufacturers of welding equipment have co-operated in forming the Resistance Welder Manufacturers' association.

G. A. Cutter, Thomson-Gibb Electric Welding Co., Lynn, Mass., has been named chairman and R. G. English, Swift Electric Welder Co., Detroit, secretary-treasurer.

Members of the new association are: American Electric Fusion Corp., Chicago; Federal Machine & Welder Co., Warren, O.; Swift Electric Welder Co., Detroit; Taylor-Winfield Corp., Detroit; and Thomson-Gibb Electric Welding Co., Lynn, Mass., and Bay City, Mich.

McKee Becomes New Head Of Iron and Steel Division

Arthur G. McKee, president, Arthur G. McKee & Co., Cleveland, has been named chairman of the Iron and Steel division of the American Society of Mechanical Engineers for 1932, succeeding Prof. W. Trinks, Carnegie Institute of Technology, Pittsburgh.

J. H. Hitchcock, research fellow, Carnegie Institute of Technology, engaged in special work on the heavy-duty antifriction bearings project started by the division, continues as secretary. W. R. Webster, vice president, Bridgeport Brass Co., Bridgeport, Conn., has been appointed to serve a 5-year term on the executive committee, replacing W. W. Macon, consulting editor, *Iron Age*, New York, who is retiring after having served since 1927.

The division is planning an active year, a program now being arranged for a one-day meeting in April in cooperation with the Engineering Society of Western Pennsylvania. The national meeting will be held in Buffalo, Oct. 3-7, during the National Metal congress and exposition.

Recently it has been suggested that the Iron and Steel division and the Machine Shop Practice division form a Wear of Metals Research committee to co-ordinate research in this field.

E. M. BRIQUETS

FOR CUPOLA ADDITION

GIVE YOUR IRON PROTECTED ALLOYS

WHEN you add ferro-chromium, ferro-manganese, or ferro-silicon in the cupola in its ordinary form, you weigh the alloy carefully and shovel it in. After that, factors beyond your control determine the amount that will be wasted by premature oxidation before it reaches the hottest zone. Cost-inflating off-iron often is the result.

What can you do about it?

The answer is to add a specified number of E. M. BRIQUETS with the cupola charge. Each E. M. BRIQUET contains an unvarying amount of metallic chromium, manganese, or silicon in a refractory binder which protects it from premature oxidation. At the hottest zone of the cupola, the binder disintegrates and releases the full charge of the uncontaminated element to the iron. Recovery is higher. Thorough solution is assured. Guesswork and waste are eliminated.

Electromet Metallurgical Engineers will be glad to explain how E. M. BRIQUETS can be used to advantage in your foundry. Write today for further information.

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Unit of Union Carbide and Carbon Corporation

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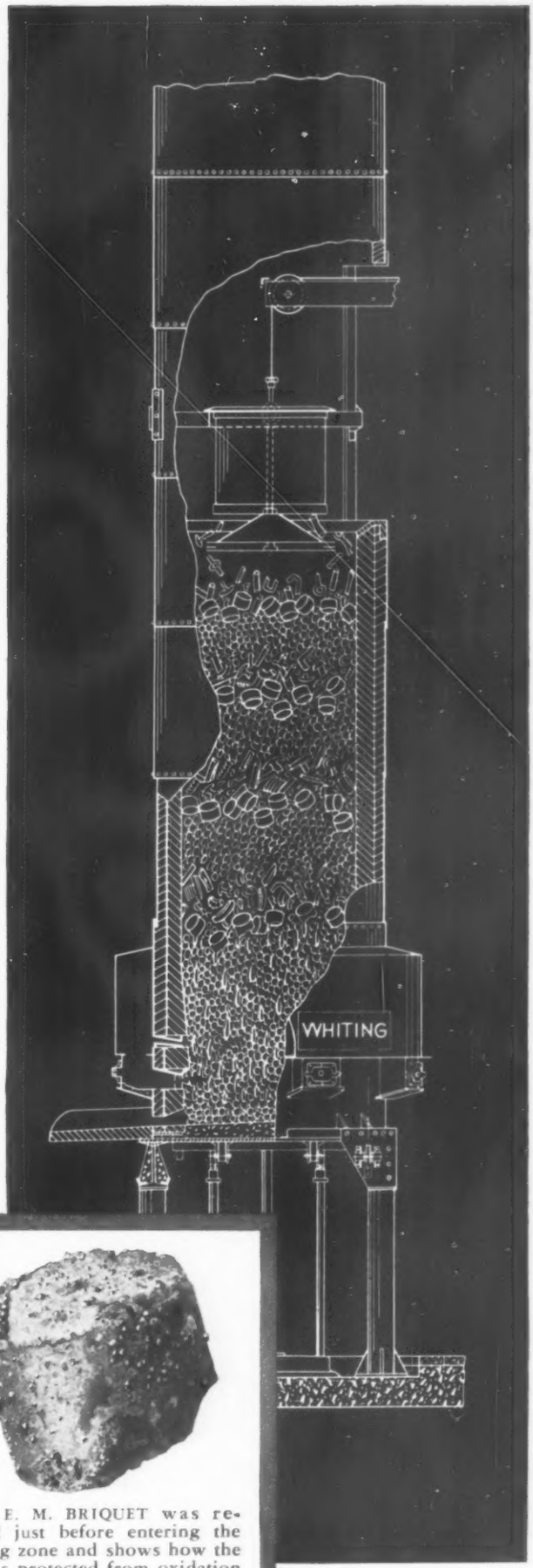
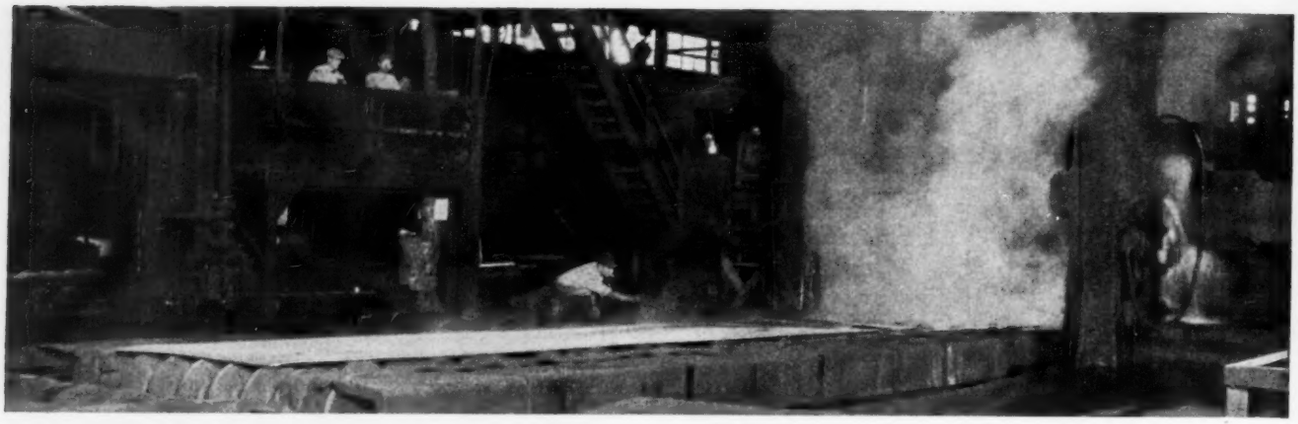


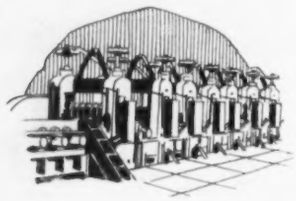
COURTESY WHITING CORP.

This E. M. BRIQUET was removed just before entering the melting zone and shows how the alloy is protected from oxidation during its descent through the upper oxidizing zone of the cupola.



PROGRESS IN STEELMAKING

SIXTEEN pneuphonic horns located at the soaking pits, rolls, heating furnaces, shears, saws, motor rooms, etc., provide an interesting air-signaling system at a new mill in the Chicago district. The air valves released from the vibrating diaphragms of the horn are greatly amplified, and the deep-tone signal is clearly audible at a great distance but produces no ear-splitting annoyance. The necessary wide variety of distinct alarms to signal for the various operations throughout the mill, as well as to summon the personnel when necessity arises, is accomplished by the use of several sizes of horns.



A ROLL neck lubricating outfit installed on the last three stands of a 12-inch continuous mill in Ohio, has increased the life of the brasses 52 per cent and reduced the quantity of lubricant 50 per cent.

♦ ♦ ♦

Protection of pipe lines, spray nozzles, valves, pumps, meters, cooling systems, etc., used around steel plants now is afforded by the development of an automatic strainer. The new unit consists essentially of a vertical screen cyinder which revolves in a cast-iron housing. Water enters the housing, passes through the revolving screen to the interior of the cylinder and is discharged at the bottom. About 1½ per cent of the main flow, already screened, jets from within the screen cylinder through a narrow floating slot, at the side of the strainer, into a waste compartment, thus keeping the screening area cleaned of all foreign solids. One installation is daily recovering 10 carloads of granulated blast furnace slag in excess of what was recovered by previous methods of separation.

♦ ♦ ♦

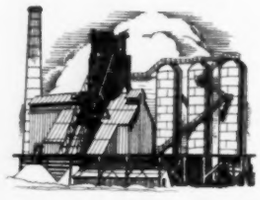
Crushed tungsten carbide sealed in a steel tube and contained in a matrix of hard facing alloy is the basis of a newly developed welding rod for hard facing steel parts to resist abrasion.

♦ ♦ ♦

Thorough agitation of graphite mold wash mixtures by air is advocated particularly when the application is made by spraying, inasmuch as graphite being insoluble in water has a tendency to precipitate.

♦ ♦ ♦

Removing the end run of slabs from a continuous heating furnace in the Chicago district is accomplished by a recently devised means. A supply of defective slabs provided with gas-cut holes along both sides are attached to the pusher with U-shaped hooks, one at a time, until there are enough in the row to push the prime stock out the discharge end of the furnace. The scrap slabs then are uncoupled in turn and laid aside for use when a similar need arises.



WITH modern blast furnace stove construction employing smaller checkers only about 25 per cent of the gas output is used for heating the blast compared with 35 per cent with older type stoves.

♦ ♦ ♦

Insulation of soaking pit regenerators is affording one large steelmaker a saving of 8½ cents per ton of ingots heated.

♦ ♦ ♦

One of the novelties in a 12-inch hot strip mill situated in Pennsylvania is the use of a modified public address system with a microphone and loud speaker. By means of this equipment, the mill attendants deliver operating instructions and speed changes to the operator in the control pulpit.

♦ ♦ ♦

On each 4-high stand of a continuous mill of an Ohio stripmaker, a magnet clutch interposed between each screw and screwdown drive permits independent adjustment of the screws at each end of the roll.

MANY open-hearth superintendents pay a bonus to crews in charge of their steel yard for sorting out nonferrous metals, such as babbitt, tin, lead, etc., from scrap charges as a means of preventing contamination with the steel bath and of preserving the furnace bottom.

♦ ♦ ♦

Tests conducted by a steelmaker in the Pittsburgh district disclose that when sawing cold steel an excessive amount of water flowing down with the saw blade to the line of contact will retard the cutting action and produce a hard surface at the ends of the material being cut. This hardness was found by the Shore scleroscope to range from 45 to 80 and leads to difficulty when the severed material requires machining.

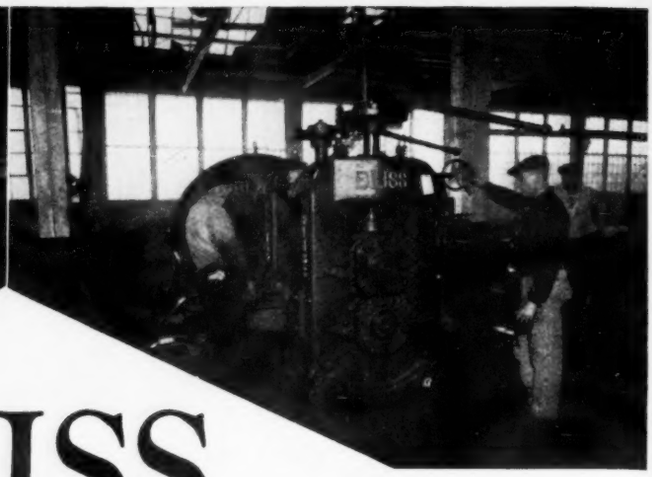
COPPER HYDROGEN ELECTRIC WELDING

COPPER Hydrogen Electric Welding has for a number of years been used by us, in our product, in large volume production for some of the foremost industries. Our plant facilities are now being increased to enable us to handle general commercial welding of this type. Bundy Tubing Company is the only concern in the world equipped to render general commercial welding service on steel parts by the use of this process.

BUNDY TUBING CO.

Detroit, Mich., U. S. A.

ALSO MANUFACTURERS OF BUNDYWELD STEEL TUBE



BLISS knows the value of Timkens on roll necks

The E. W. Bliss Company, Salem, Ohio, is one of the leading rolling mill builders who use Timken Heavy Duty Mill Type Bearings to give their equipment every modern advantage and economy in operation and maintenance.

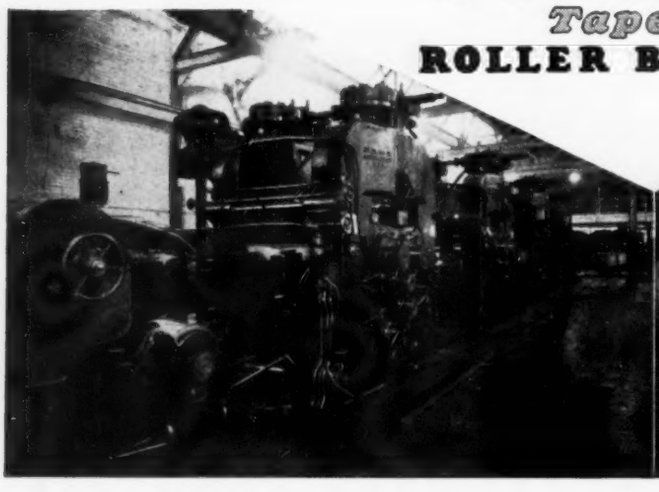
Bliss builds with Timkens because Timken is the only type of bearing that combines full anti-friction efficiency with the capacity to carry all radial, thrust and shock loads, thereby assuring dependability and long life on roll necks. Timken is the only type of bearing that can be set up with extremely close radial running clearance and held to that clearance during its entire life.

Use this progressive mill builder's experience for your own benefit. Specify Timken-equipped. Your present mill equipment can be modernized with Timkens. Consult the builder, or get in touch with the Timken Engineering Department. The Timken Roller Bearing Co., Canton, Ohio.

Users of Bliss Timken-equipped rolling mills:

Acme Steel Co.
Aluminum Co. of America
American Rolling Mill Co.
American Sheet & Tin Plate Co.
American Steel & Wire Co.
Revere Copper & Brass Co., Inc.
Dallas Division
Michigan Division
Rome Division
Taunton Division
International Nickel Co.
Republic Steel Corp.
Sharon Steel Hoop Co.
Thomas Steel Co.
Western Electric Co.

TIMKEN
Tapered
ROLLER BEARINGS



Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

Ventilation

Ventilation of steel mill motor rooms and motors, by F. D. Egan and C. B. Huston, in Blast Furnace and Steel Plant, February, 1932, p. 167, 4½ pp., 6 illusts.

Special attention was paid to the problem of ventilation in the motor rooms of 30-inch and 21-inch continuous mills, recently installed by a leading steelmaker. Electrical equipment is of special design, as well as the rooms in which this equipment operates. Forced ventilation is employed, with the air cleaned and properly directed. In the 30-inch mill a self-contained enclosed cooling and recirculating type of ventilating system is applied to each of the three large motors. Warm air from the motors is drawn through a surface-type air cooler and recirculated over the motor, water being the cooling medium.

In the 21-inch mill, because of the larger number of machines involved and the importance of keeping the air within the room clean and cool, a recirculating ventilating system was applied to the station as a whole. Motor-driven fans are located in the basement of the station beneath the motors. Warm air is drawn into the basement from one end of the room, passes through surface air coolers, and is blown up around the motors at the other end of the station. A regulated amount of cleaned make-up air is introduced into the system from the outside. The two main fans in the basement are rated at 100,000 cubic feet of air per minute at 4 inches water gage pressure.

—STEEL, 2-22-32

Centerless Grinding

Centerless grinding of bars and tubes, in Stahl und Eisen (Germany), Dec. 31, 1931, 3 pp., 4 illusts.

This type of grinding, although of comparatively recent application in the manufacture of automobile parts, drills, etc., has become an important tool in the metalworking industry. In a centerless grinding machine the work to be ground is placed upon a rest located between two grinding wheels, which rotate in opposite directions. The larger wheel, which actually effects the grinding, rotates at the speed prescribed as most efficient for the kind of abrasive of which it is made and best suited for the metal being machined, while the smaller wheel, although generally made of abrasive material, regulates the feed and speed of the piece being ground.

Where hot-rolled bars are to be checked for surface defects, the roll skin may be removed more quickly and at less cost by centerless grinding than by lathe turning. In the case of highly alloyed steels, the work may be put through several rough grinding operations and then followed by a finish operation, depending upon the diameter of the work and amount of material to be removed.

Advantages of centerless grinding are the elimination of the need of boring centers in the piece, no chucking or setting up of the work, increased economy and accuracy, and a finer finish than can be produced in a lathe.

—STEEL, 2-22-32

Heating for Forging

Factors involved in the heating of steel for forging, by N. L. Deuble, in Heat Treating and Forging, January, 1932, p. 19, 5½ pp., 3 tables, 3 illusts.

In the use of ordinary box-type furnaces for heating steel for forging, three variables must be considered—time and temperature of heating the steel, analysis of the steel, and size of the part. Plain carbon steels up to 0.50 per cent carbon and low alloyed steels up to 0.40 carbon can be heated rapidly in sizes under 5 inches square. From this size up to 12 inches square the parts should be preheated before charging into a forge furnace at heat. Over the latter size they should be charged cold and heated gradually. The cooling of forgings over 5 inches square, equivalent cross section, should be controlled.

Higher alloy steels, known as sensitive steels, should be preheated to 1400 to 1600 degrees Fahr. before charging into a hot furnace and large sizes should be charged into a cold furnace and brought up to heat gradually. It is important that these forgings be cooled uniformly and slowly, preferably in a furnace. Large sizes must be furnace cooled. The precautions, of course, are only general and can be used only as a guide. In the end, one must be governed by experience obtained in his own shop.

—STEEL, 2-22-32

Pressure Vessels

Chrome-vanadium steel pressure vessels, in Vancoram Review, January, 1932, p. 7, 5½ pp., 5 illusts.

Pressure vessels of low-alloy steel are serving for many processes operating at moderate temperatures under mildly corroding conditions, although at high pressures. Among these low-alloy steels, the chrome-vanadium analysis has been found quite suitable for large pressure vessels. Steel containing from about 0.10 to 0.45 per cent carbon, with 1 per cent or somewhat more chromium and approximately 0.20 per cent vanadium has exhibited excellent mechanical properties at both room and moderately elevated temperatures, has uniformity even in large masses, and is adaptable to most all fabricating operations.

These qualities account for the production of large ingots for conversion not only into forgings but also into both light and heavy plate for the construction of welded units. The soundness and hot-workability of these large ingots and the good mechanical properties of electrically welded equipment of large size have been noteworthy. Analyses and physical properties of a number of low-alloy chrome-vanadium steels are presented.

—STEEL, 2-22-32

Shear Blades

Experiments with hard surfacing shear blades for cutting alloy steel, in Oxy-Acetylene Tips, February, 1932, p. 24, 1 pp., 1 illust.

A welding shop in the East installed a small shear for use in cutting plate to size. Attempts to cut ¼-inch stainless steel plate ruined the shear blades in a short time. It was decided to hard surface the blades with stellite to reduce wear. This was done and the shear now has been in use for two hours a day during the past two years, cutting stainless steel. Little wear has been detected on the blades.

—STEEL, 2-22-32

New Equipment

PRODUCTION FABRICATION TREATMENT FINISHING

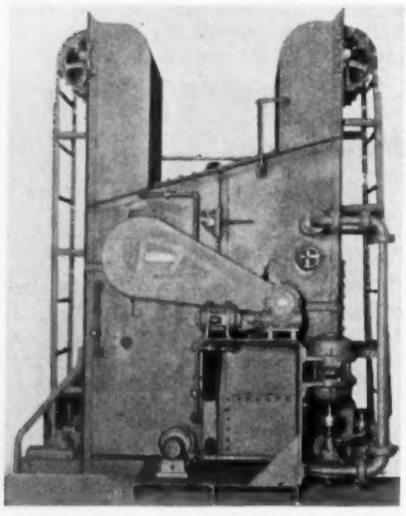
Vertical Solvent Machine Unique in Design

Rex Products & Mfg. Co., 13005 Hillview avenue, Detroit, just has placed on the market a vertical type of solvent machine, short coupled and recommended for use where floor space is limited or where it is desired to place the operation of the machine in the hands of only one operator. The cleaning solvent used in the machine is nonexplosive, noninflammable, permanent in quality and acid-free in both liquid and vapor form.

Work is placed on the conveyor, with or without fixtures, at the right of the machine shown below, after which it passes downward into the unit between powerful streams of boiling solvent, which strike the work at all angles at a pressure of 35 pounds per square inch. The conveyor bearing the work passes over and upward to permit the work to drain, after which the work is carried through a rinse of distilled hot solvent. The work then is moved upward and leaves the machine clean and dry. It may be removed from the conveyor at the left of the unit or allowed to pass under the machine and return to the operator for subsequent removal.

After the solvent in the pumping chamber has been contaminated with an accumulation of oil and foreign matter, the flow-back pipe from the rinsing chamber is shut and the solvent is drawn off into a reserve tank until all of it in the pumping chamber has been distilled or evaporated, leaving only a sludge and the accumulation of dirt in the pumping chamber. The dirt and oil then are removed and cleaned out of the machine by the displacement of a plate on the pumping chamber. After distilling, the solvent is drained back into the pumping chamber from the rinse and reserve tanks, ready to participate in another cleaning cycle.

The process is most suitable for cleaning zinc or lead coated metals, aluminum die castings or soft metals which are affected by ordinary alkali cleaners, as well as removing lubricating oils from machined, stamped or quenched parts, or buffing compounds, before painting, lacquering, enameling, plating, vitreous enameling or applying other surface coatings.



Vertical solvent machine designed by Rex Products & Mfg. Co.

Cutler-Hammer lifting magnet has renewable pole shoes

◆

Lifting Magnet Suitable For Many Uses

Cutler-Hammer Inc., 320 North Twelfth street, Milwaukee, has announced a new 30-inch size, heavy duty lifting magnet. It is especially suitable for use with crawler type cranes in foundries, scrap yards, warehouses, etc., where the size of direct current generator must be small and the lifting capacity of the magnet high. A 2½ kilowatt generator is all that is required.

The magnet case is of high permeability steel with renewable pole shoes of special, wear resisting steel. After winding, the coil is treated by an insulating process which permanently holds the coil in place, makes it hard and rigid, fills all crevices of the magnet interior to make it waterproof, and, because the compound is an excellent heat dissipator, the "hot spot" temperature is reduced, resulting in longer life and permitting its use for handling hot material.

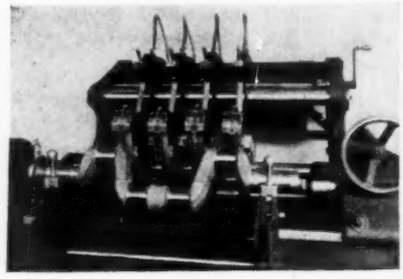
Each magnet is furnished complete with two heavy, protected, connecting cables and two of the new style Cutler-Hammer cable connectors, to permit easy installation. The weight of the magnet, shown in the illustration at left, is approximately 1300 pounds.

◆

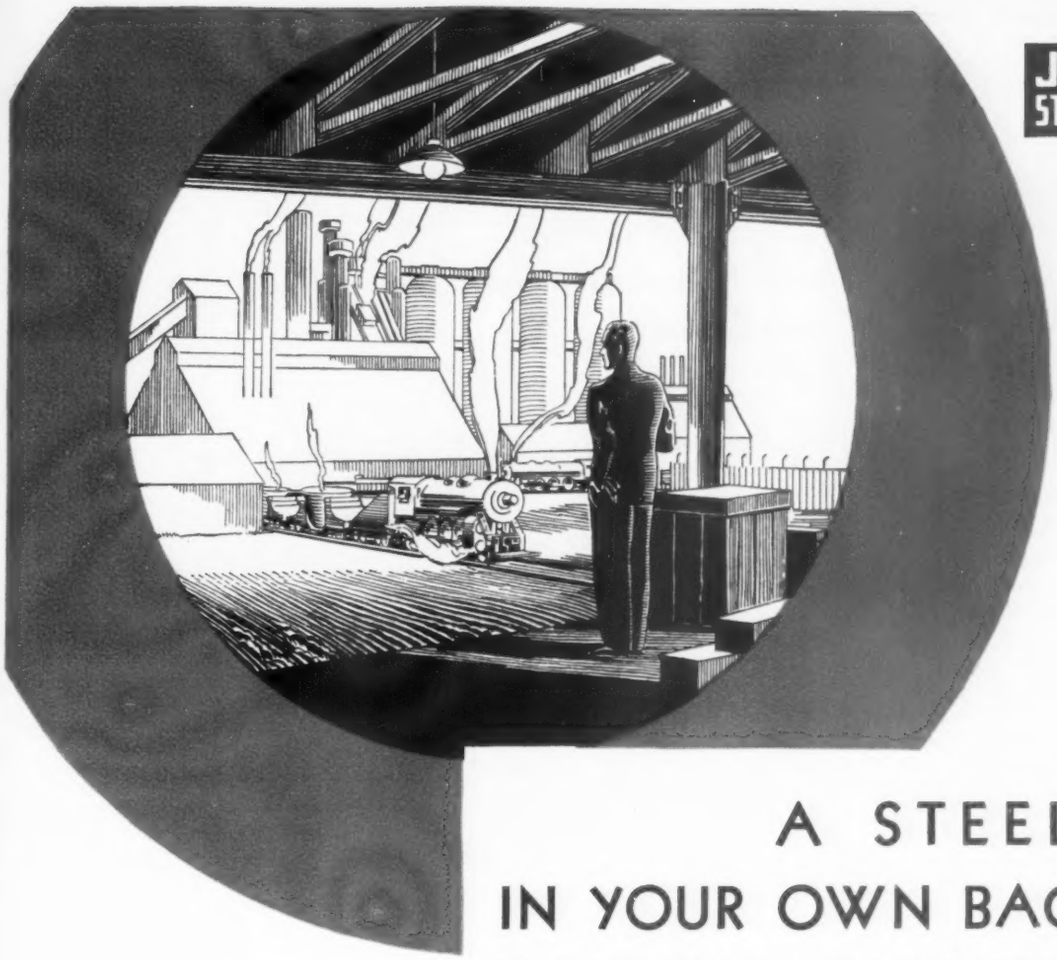
Introduces New Crankshaft Lapping Machine

Norton Co., Worcester, Mass., recently developed a new crankshaft lapping machine for lapping simultaneously the pins and bearings of automotive crankshafts. The shaft to be lapped is rotated between a live headstock and a floating footstock center. The lapping arms, one of which is required for each pin and bearing, are equipped with telescoping reels, each of which carries a roll of abrasive paper. Each time a lapping arm is removed from a pin or bearing these reels are indexed automatically, thus presenting a fresh, unused abrasive surface to each pin and bearing lapped.

The bed of the machine is a heavy, rigid box section and upon it are mounted the headstock, footstock and the housing which supports the lapping arms. The headstock remains permanently at one end and the footstock is adjustable to accommodate a range of crankshaft lengths. The footstock center is operated by a treadle thus permitting an operator the use of both hands when loading or unloading. As



Close-up of lapping arms on Norton crankshaft lapping machine



J&L STEEL

A STEEL MILL IN YOUR OWN BACK YARD

WOULD GIVE YOU NO BETTER SERVICE THAN J&L WAREHOUSES . . . . .

J & L Warehouses carry stocks that give you—for every need—the right quality in a full range of sizes.

J & L Warehouse personnel is trained to know its steel, and to understand your needs. The man who takes your order is not just a *stock* man, but a trained *steel* man. He knows what steel he has on hand; and he knows what it's used for, and why.

J & L Warehouse management anticipates your wants, keeps abreast of changing trends that may affect your steel requirements.

Complete stocks—intelligent service—anticipation of your wants—what more could your own steel mill give you?

The J & L combined Stock List should be on your desk. It gives you complete information on shapes, qualities and sizes of warehouse stocks. In addition, it contains much valuable technical information. May we send you a copy?

FOR EVERY NEED . . . THE RIGHT QUALITY OF STEEL IN A FULL RANGE OF SIZES . . . . .

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
PITTSBURGH

Sales Offices: Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Erie, Los Angeles, Memphis, Milwaukee, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco
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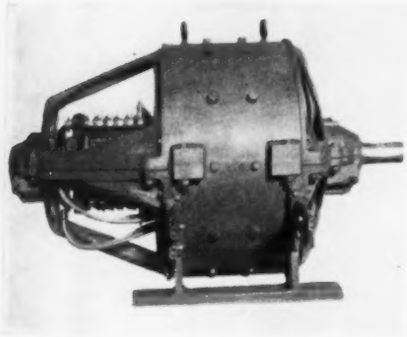
J&L WAREHOUSES

PHONE

CHICAGO	CINCINNATI	DETROIT	NEW ORLEANS	PITTSBURGH
Virginia 1600	Main 2324	Melrose 6650	Franklin 1131	Hemlock 1000

LOUISVILLE—Magnolia 1693 . . . Stock of Bars for Concrete Reinforcement and Bar Fabricating Yard
MEMPHIS—6-4836 . . . Distributing Warehouse for Pipe, Sheets, Spikes and Wire Products. Reinforcing Bar Warehouse and Fabricating Shop

AND BE SURE . .



New motor developed by Reliance Electric & Engineering Co.

additional equipment, a work loading fixture can be attached to the front of the bed.

A feature of the machine, shown in the illustration on page 36, is the supporting housing for the lapping arms. Upon completing the lapping of a shaft each arm is released and the housing swung backwards by a spin of the hand wheel. Thus, the lapping arms and their supporting members are moved out of the way for loading and unloading.

The machine will swing 16 inches diameter over the table and will accommodate a maximum length of 48 inches. Crankshaft pins and bearings up to 2½ inches in diameter by 4½ inches long can be lapped. The machine complete weighs 4800 pounds and requires a floor space approximately 56 x 104 inches. Motor driven or belt driven models are offered.

◆

Split-Frame Construction Features Motors

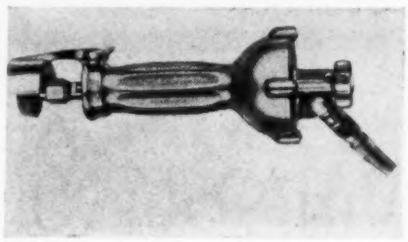
Reliance Electric & Engineering Co., 1088 Ivanhoe road, Cleveland, recently announced the addition of larger motors to its type T direct current line. The new units range in size from 100 horsepower at 800 revolutions per minute to 350 horsepower at 1200 revolutions per minute and can be supplied for constant speed or adjustable speed service with a range of 2 to 1 or 3 to 1.

Rolled steel split-frame construction is used for the motors, shown herewith. Two oil rings at the front end, and three at the back keep the bearings well lubricated. Brushholders combine the advantages of the reaction type with those of the box type. Brushes always are kept at proper tensions. Hard-drawn coppers bars are used for the commutator, the construction of which is such that the bars will not loosen upon expansion and contraction. The leads are brought through both ends of the frame and held in place by wooden cleats. No terminal board is used.

◆

GrinderEmbodies Automatic Speed Control

Madison-Kipp Corp., 225 Waubesa street, Madison, Wis., has developed a new air grinder designated model double D, shown in the illustration herewith. Outstanding features include an operating speed of 30,000 revolutions per minute. To meet the wide variation in air pressures in shops, the new unit incorporates an automatic control which governs the speed at both the high and low point of its pressure range. The



Madison-Kipp hand grinder meets air pressure variations

speed control is of the steel finger type. These fingers, actuated by centrifugal force, automatically valve the exhaust air ports in such a way as to maintain a correct air flow when the grinder has reached its established maximum speed.

The new air grinder has a die cast magnesium rotor. Its lightness and balance provide fast pick-up, eliminate vibration and reduce the gyroscopic action prevalent when, under certain conditions, a mass revolves at a high rate of speed. Exhaust valve cage and a part of the speed control, also are made of magnesium. A syringe type of pressure oiler, inserted into the collet end of the hollow spindle from which radial holes lead to the bearings, is employed.

A removable wheel guard is standard equipment, facilitating use of the device for internal grinding. The shape of the grinder makes it particularly adaptable to one-hand grinding. It is 9¾ inches in length and weighs 2½ pounds.

◆

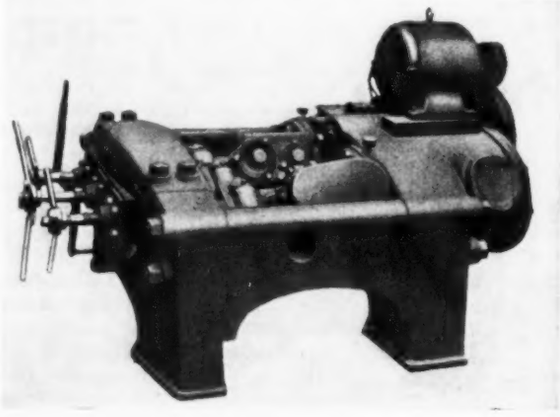
Cross Roll Straightener Has Movable Housings

Sutton Engineering Co., Pittsburgh, recently acquired the American and Canadian rights to manufacture and sell an improved cross roll straightener embodying the patented feature which provides for changing the angle of drive rolls as well as changing the angle of the idle rolls.

Changing the angle of the drive rolls fills a long felt need in that a full length line contact between the bar or tube and the drive rolls always is maintained for every size of bar or tube within the range of the particular machine. It is claimed that by this swiveling of the drive rolls, greater life is imparted to the rolls, and possible danger of spiralling the bar or tube through long operation on one side eliminated. Better polish by greater line contact is obtained simultaneously with smoother operation. The unit is illustrated below.

The design also makes it possible to change the straightening centers by changing the position of the idle rolls longitudinally in their relation to the driven rolls by means of the movable housings in which they are held. All gears are fully enclosed and bearings are of the antifriction type. The method of swiveling the drive rolls makes it unnecessary to employ universal joints or other means.

BETTER polish by greater line contact is obtained in the operation of this cross roll straightener manufactured by Sutton Engineering Co.



TRADE MARK OF DISTINCTION

ONLY familiarity can convey the true meaning of a trade mark. It is a reminder to buyers that invites every past recollection of act or association. Continued use makes it a definite stamp of character.

Nothing we say here can add or detract from that which the Union Drawn Trade Mark represents. Its significance of leadership is established.

» «

UNION DRAWN STEEL CO. - - - BEAVER FALLS, PA.

FREE CUT

A Superior Bessemer Screw Stee

A COMPLETE HISTORY of all the steady improvements which Union Free Cut Bessemer has undergone would start with the beginning of cold drawing by this company in 1889 and lead to the present day.

Through practically all those years, the output of Bessemer screw steel in the Union Drawn Mills has far exceeded that of all other steels combined. The importance, therefore, of every possible improvement in quality has always been paramount.

Union Drawn not only pioneered the manufacture of cold finished Bessemer but has always been a leader in tonnage production. This steel is available at all of our plants and at the warehouses of hundreds of jobbers throughout the country. Its users are legion. An endorsement of this product will be found in every field of manufacture where steel bars are used.

The trade distinguishes Union Free Cut Bessemer from ordinary Bessemer screw stock by the green painted ends of bars. No product in steel is more familiar than these "bars with the green ends."

With complete control of production from the ore to the finished steel, Union Free Cut Bessemer is uniform in free cutting qualities, one bar after another, regardless of tonnage. Its structure is clean, bars are true to size and section, the surface is bright and the most satisfactory results in machining are warranted.

When work calls for Bessemer screw steel, specify Union Free Cut to be sure of the best quality the industry affords.

UNION DRAWN STEEL CO. - - - BEAVER FALLS, PA.

UNION DRAWN STEELS

Steel Rate Down, but Tone Is Firmer

Operations Drop to 25 Per Cent, Though Four Blast Furnaces Are Relighted — Price Stabilization Movement Is Gaining Momentum

LACK of substantial railroad and automotive demand continues the chief handicap of steel producers, depressing steelmaking operations two points last week to 25 per cent, yet this lack suggests an element of future strength.

Current production virtually represents minimum needs of important outlets for steel other than the railroads and automobile manufacturers. These needs, apparently, will go no lower, while any change in the transportation industries must be on the side of improvement.

An offset to the decline in steel production to 25 per cent—a rate probably describing this week's activity—is the lighting of four blast furnaces, one each by the Carnegie Steel Co., Youngstown Sheet & Tube Co., Shenango Furnace Co. and Woodward Iron Co. Last week, American Rolling Mill Co. put on a stack; Republic Steel Corp. may relight one soon. Since Jan. 1 there has been a net gain of nine.

Further denoting the conviction of steelmakers that, despite the current easing in production, the entire situation is less taut, is the stabilization of heavy finished steel prices. As in flat rolled products, the objective is not so much an advance as the elimination of concessions.

On bars, plates and shapes producers are withdrawing all quotations under 1.60c, Pittsburgh or equivalent, and will book through the second quarter on this basis. This is an advance of $2 per ton over the recent general market. Some makers of flat rolled products are quoting the new prices, up $3 per ton in some cases, only through the first quarter.

Obviously, the low level of current demand is not affording any test. The deliberateness with which Ford is entering the market for what must be substantial lots of steel for volume production of the new models may indicate a policy of waiting-out the market.

In the aggregate, Ford purchases of steel are slightly broader, but they are so diffused for shipment to isolated partsmakers that the market has derived little impetus from this source. In the past week Ford has released some special alloy steel and is pushing makers of small parts. February production of motor vehicles reflects the completion of dealer stocking by manufacturers other than Ford, and probably will fall short of January's 125,000 mark.

Chicago & Alton will inquire for 7000 tons of rails. Nickel Plate has divided about 19,000 tons of rails among the Carnegie, Bethlehem, Illinois and Inland companies; like the Erie, it will have 4000 tons of fastenings to place. Wheeling & Lake Erie will buy 50 to 100 gondolas; Southern Pacific may build 100 refrigerator cars for the Pacific Fruit Express. Chicago Belt Line railway has placed repairs to 100 hopper cars. Substantial rail inquiry for eastern roads is expected early in March.

A projected natural gas line from Indiana to Detroit requires 35,000 tons of steel pipe. Cast iron pipe orders include 3000 tons by St. Louis county, Mo., 1700 tons by Minneapolis and 1500 tons by St. Paul.

Shape awards for the week, 12,791 tons, are practically unchanged in volume from the preceding week. A Newark, N. J., postoffice will take 7500 tons. Two government dredges awarded will require 9600 tons of plates.

The increase in blast furnace operations is a reflection of a 10 to 15 per cent improvement in shipments this month, though new business is disappointing. An order for 30,000 tons of by-product coke has been booked at Cincinnati.

Due mainly to adjustments in sheet prices, STEEL's finished steel composite this week is up 20 cents to $46.82; the iron and steel composite is down 4 cents to $29.53, while the steelworks scrap composite remains $7.85.

Composite Market Averages

	Feb. 20	Feb. 13	One Month Ago (Jan., 1932)	Three Months Ago (Nov., 1931)	One Year Ago (Feb., 1931)	Ten Years Ago (Feb., 1922)
Iron and Steel Composite	$29.53	$29.57	$29.98	$30.61	$31.65	$32.86
Finished Steel Composite	46.82	46.62	47.28	48.17	49.42	50.29
Steelworks Scrap Composite	7.85	7.85	8.03	8.22	10.39	11.16

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Feb. 20, 1932	Jan., 1932	Nov., 1931	Feb., 1931
PIG IRON				
Bessemer, del. Pittsburgh	$16.76	17.26	17.76	18.51
Basic, valley	15.00	15.00	15.00	16.75
Basic, eastern del., eastern Pa.	15.75	16.00	16.00	17.25
No. 2 foundry, del. Pittsburgh	16.76	17.26	17.76	18.01
No. 2 foundry, Chicago	16.50	16.50	17.00	17.50
*Southern No. 2, Birmingham	11.00	12.00	12.00	13.00
**No. 2X, Virginia furnace	18.00	18.00	18.00	18.25
**No. 2X, Eastern del. Phila.	15.76	15.76	16.01	18.26
Malleable, valley	15.50	16.00	16.50	17.25
Malleable, Chicago	16.50	16.50	17.00	17.50
Lake Superior, charcoal, del. Chi.	23.04	22.44	25.04	27.04
Gray forge, del. Pittsburgh	16.13	16.63	17.13	17.38
Ferromanganese, del. Pittsburgh	80.24	79.85½	89.79	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

COKE				
Connellsville furnace, ovens	2.25	2.25	2.35	2.50
Connellsville foundry, ovens	3.25	3.25	3.25	3.25
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	26.00	26.00	29.00	30.00
Sheet bars, open-hearth, Pitts.	26.00	27.50	29.00	30.00
Billets, open-hearth, Pittsburgh	27.00	27.50	29.00	30.00
Wire rods, Pittsburgh	37.00	37.00	35.00	35.00

	Feb. 20, 1932	Jan., 1932	Nov., 1931	Feb., 1931
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.50	1.55	1.60	1.65
Steel bars, Chicago	1.60	1.70	1.70	1.70
Steel bars, Philadelphia	1.81	1.81	1.89	1.94
Iron bars, Chicago	1.70	1.60	1.65	1.75
Shapes, Pittsburgh	1.50	1.55	1.60	1.60
Shapes, Philadelphia	1.60	1.65	1.69½	1.81
Shapes, Chicago	1.60	1.70	1.70	1.70
Tank plates, Pittsburgh	1.50	1.55	1.60	1.65
Tank plates, Philadelphia	1.69½	1.69½	1.73½	1.80½
Tank plates, Chicago	1.60	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.70	1.75	1.85	1.90
†Sheets, No. 24, hot, ann., Pitts.	2.20	2.20	2.40	2.35
Sheets, No. 24, galvan., Pitts.	2.75	2.80	2.90	2.90
Sheets, No. 10 blue anneal., Chi.	1.85	2.00	2.00	2.05
†Sheets, No. 24, hot, ann., Chi.	2.35	2.45	2.55	2.50
Sheets, No. 24 galvan., Chi.	3.00	2.95	3.05	3.05
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.90	1.90
Tin plate, per base box, Pitts.	4.75	4.75	4.75	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$10.25	10.25	10.25	12.75
Heavy melting steel, eastern Pa.	7.35	7.50	7.95	10.50
Heavy melting steel, Chicago	6.75	7.20	7.65	9.85
No. 1 wrought, eastern Pa.	9.00	9.35	9.50	11.00
No. 1 wrought, Chicago	6.75	7.25	8.00	9.25
Rails for rolling, Chicago	10.00	10.25	10.00	12.10

Sheets

New Minimum Prices Raise Most Grades—Buying Stimulated in Middle West and South

SHEET PRICES, PAGE 43

Pittsburgh—New minimum prices on steel sheets now are being quoted by producers for the remainder of this quarter. These quotations so far have received little test, although business continues slightly heavier than a month ago. Books have not been opened for second quarter. Prices now quoted are 2.20c, Pittsburgh, for hot-rolled annealed sheets; 2.85c for galvanized; 2.75c for No. 20 cold-rolled; 2.90c for autobody; 2.40c for tin mill black, and 2.90c for long ternes. The stronger stand has produced some anticipatory buying, though consumption is little changed. Ford orders are light and the tendency in demand from other automotive interests is slightly downward.

Philadelphia—Although little test is expected before the middle of March, sheet producers are extending their price stabilization efforts to cold-rolled products, autobody and furniture sheets. Current demand is quiet.

New York—Sheet sellers generally are quoting new minimums, although with demand light, and some protections out, a little time may elapse before prices are tested. On No. 10 hot rolled, 1.55c, Pittsburgh, appears minimum, some tonnage going at 1.60c. No. 24 hot-rolled annealed are 2.20c, minimum, $1 higher than a week ago. The minimums on cold-rolled sheets have been increased substantially.

Buffalo—A tendency toward firmer prices is noted here as it is now impossible to duplicate the low quotations of January. Demand is improving gradually.

Youngstown, O.—The impression is growing that new sheet business may not improve substantially until March. Specifications continue to keep mills working at 30 to 35 per cent. The recent strengthening of quotations on certain grades seems to be driving in some orders. Automotive demand is quiet. Northern Ohio mills are unable to participate much in the seasonal revival in the South for galvanized building material. No. 24 hot-rolled annealed sheets have firmed up to 2.20c, Pittsburgh; autobody, to 2.90c; and No. 24 galvanized, to 2.85c. No. 10 blue annealed are 1.70c.

Cleveland—Virtually all sheet producers have named stabilized prices on new inquiry. The real test will come when present contracts expire and second quarter arrangements are considered. In the meantime not all customers have been notified of the changes due to light demand. No price announcement has been made as yet by any producer of electrical sheets. Specifications from Fisher Body Co. here show further slight retrenchment.

Cincinnati—Efforts are being made in this district to establish firmer sheet prices. Demand for early needs has slackened, but not enough to affect a 40 per cent production.

Chicago—Sheet orders made a decided improvement during the week, from virtually all consuming lines. Production was stepped up to 30 to 35 per cent. Inland Steel Co. announces new sheet prices the remainder of this quarter and the second quarter, which advanced No. 24 galvanized $3 a ton from the recent low. Chicago district mill quotations are 1.65c for No. 10 hot rolled; 1.80c for No. 10 blue annealed; 2.30c for No. 24 hot-rolled annealed; and 2.95c for galvanized. The Chicago switching district delivered differential remains at $1.

St. Louis—Some inquiries have developed for second quarter. Shipments thus far this month compare favorably with those in January. Price schedules are being held firmly.

Current Finished Steel Prices

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10

*Pittsburgh, base	1.55c
*Gary, Ind. Harbor, base	1.65c
*Chicago, del.	1.70c
*New York, del.	1.90c
*Birmingham, base	1.70c
*Philadelphia, del.	1.86c

BLUE ANNEALED NO. 9-10

*Pittsburgh, base	1.70c
*Chicago, district mills	1.80c
*Chicago, delivered	1.85c
*Philadelphia, del.	2.01c
*New York, del.	2.05c
*St. Louis, delivered	2.07½c
*Birmingham	1.85c
San Francisco c.i.f.	2.35c

HOT ROLLED ANNEALED NO. 24

*Pittsburgh, base	2.20c
*Gary, Ind. Harbor, base	2.30c
*Chicago, del.	2.35c
*New York, del.	2.55c
*Philadelphia, del.	2.51c
*Birmingham, base	2.35c
*St. Louis, del.	2.57½c
San Francisco, c.i.f.	2.90c

GALVANIZED NO. 24

*Pittsburgh, base	2.75c to 2.85c
*Gary, Ind. Harbor, base	2.95c
*Chicago, del.	3.00c
*Philadelphia, del.	3.16c
*Birmingham, base	3.00c
*St. Louis, del.	3.22½c
San Francisco, c.i.f.	3.40c

AUTOMOBILE NO. 20

*Pittsburgh, base	2.90c

FURNITURE

*Pitts., No. 10 heavy	2.65c
*Pitts., No. 20 light	3.15c

TIN MILL BLACK NO. 28

*Pittsburgh, base	2.50c to 2.55c
*Gary base	2.60c to 2.65c
*St. Louis, del.	2.87½c to 2.92½c

HEAVY COLD ROLLED NO. 10

*Pittsburgh, base	2.25c
*Gary, Ind. Harbor, base	2.35c
*Chicago, del.	2.40c
*Philadelphia, del.	2.56c
*New York, del.	2.60c
*St. Louis, del.	2.62½c

COLD ROLLED NO. 20

*Pittsburgh, base	2.75c
*Gary, Ind. Harbor, base	2.85c
*Chicago, del.	2.90c
*Philadelphia, del.	3.06c
*New York, del.	3.10c
*St. Louis, del.	3.12½c

TIN AND TERNE PLATE

Per 100-pound box, Pittsburgh

Tin plate, coke base	$4.75

*Long ternes, 24, unassort., 2.85c to 3.00c

Gary, Ind., base 10 cents higher

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing, (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

*Pittsburgh, base	1.50c to 1.60c
Philadelphia, base	1.69½c
New York, delivered	1.80c
*Boston, delivered	1.92c
Chicago, base	1.60c to 1.70c
*Cleveland, del.	1.70½c to 1.75½c
*Lackawanna, N. Y., base	1.60c to 1.70c
*Birmingham, Ala., base	1.65c to 1.70c
Coatesville, Pa., base	1.60c
Pacific Coast, c.i.f.	1.80c to 1.85c
St. Louis, del.	1.97½c

Structural Shapes

*Pittsburgh, base	1.50c to 1.60c
Philadelphia, del.	1.65c
*New York, del.	1.77c
*Boston, del.	1.90½c
Chicago, base	1.60c to 1.70c
*Cleveland, del.	1.70½c to 1.75½c
*Lackawanna, N. Y., base	1.60c to 1.70c
*Birmingham, Ala., base	1.65c to 1.70c
Pacific Coast, c.i.f.	2.05c
Do., wide flange	2.15c

Bars

SOFT STEEL

*Pittsburgh, base	1.50c to 1.60c
Chicago, base	1.60c to 1.70c
*Birmingham, Ala., base	1.65c to 1.70c
*Lackawanna, N. Y., base	1.60c to 1.65c
Pacific Coast, c.i.f.	2.05c
*Cleveland, base	1.55c to 1.65c
Philadelphia, del.	1.81c
New York, del.	1.85c to 1.95c
*Boston, del.	1.97c
Pittsburgh, cold finish	1.65c to 1.75c
Pittsburgh, forg. qual.	1.75c to 1.85c

RAIL STEEL

Chicago Heights	1.50c to 1.60c
Eastern mills	1.30c
Pittsburgh	1.30c to 1.35c

IRON

Chicago, base	1.70c
New York, delivered	1.85c to 1.95c
Philadelphia, delivered	1.86c to 1.96c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
*Stock lengths, mill	1.50c to 1.60c
Chi., billet	1.75c to 2.00c
Chi., rail steel	1.55c to 1.80c
Chi., rail steel, bridges and culvert	1.40c to 1.50c
Philadelphia, cut lengths	2.06c
Cleveland, cut lengths	1.75c

Cold Finished Bars, Shafting

Base Pittsburgh, Chicago, Buffalo and Cleveland	2.00c
Shafting, turned and ground, Pittsburgh, Cumberland, Md.	2.35c to 2.80c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to 6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill

S.A.E.	Alloy Diff.	4600 .20 to .30 Mo.	
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2300	1.50	51.00 Cr. spring	0.20
2500	2.25	6100 bars	1.20
3100	0.55	6100 Spring	0.95
3200	1.35	Cr., Ni., Van.	1.50
3300	3.80	Carbon Van.	0.95
3400	3.20	9250 (flats)	0.25
4100 .15 to .25 Mo.	0.50	9250 (rds.,sq.)	0.50

Strip, Hoops, Bands

Hot strip, to 6-in., Pitts.	1.50c to 1.55c
Do, 6 1/16 to 24-in., Pitts.	1.40c to 1.45c
Hot strip to 6 in. Chi.	1.60c to 1.65c
Do, 6 1/16 to 24 in.	1.50c to 1.55c
Cooperage hoop, Pitts.	1.60c to 1.70c
Do., Chicago	1.70c to 1.80c
Cold-roll. strip, Pitts., Cleve.	1.90c to 2.00c
Worcester, 3 tons, over	2.15c

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$34.00
Light rails, Chicago	$36.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.60c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.60c
Spikes, boat, barge, Pitts.	2.90c
Track bolts, Chicago	3.50c
Do, standard, jobbers	73 off list
Track bolts, Chicago	3.50c
Tie plate, mills	$37.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread 73, 10 and 10 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list 73, 10 and 10 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts 73, 10 and 10 off

Tire bolts 60, 10 and 10 off

Stove bolts, 80-25-10 off in pkgs.; 80 25-10-2½ off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished 73, 10 and 10 off

HEXAGON CAP SCREWS

Milled 80-10-10-5 off

Upset 1 in. diam. and smaller 85-10 off

SQUARE HEAD SET SCREWS

Milled 80-5 off

Upset, 1 in. and smaller 80-10-5 off

Upset, larger than 1 in. 80-5 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh 2.50c

Do. less carloads, 5 kegs or over 2.75c; less than 5 kegs, 2.90c.

Chain, BB, BBB, 9/16-1½ in. 33 1/3 off

Sheet piling, Pitts. 1.90c

Rivets

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. smaller, Pitts.	70, 10 and 5 off
Chicago, Cleve.	70, 10 and 5 off

Bars

Demand Is Scarcely Evident As Farm and Automotive Needs Lag—Prices Holding Firm

BAR PRICES, PAGE 43

New York—Steel bars are unchanged at 1.50c, Pittsburgh, with some sellers indicating a $2 a ton advance shortly. Meanwhile trading is light.

The navy has opened bids on several hundred tons of medium bar, heat treated and specialty bar steels for eastern and western yards. Henry Disston & Sons Inc., Philadelphia, is low on f.o.b. bids for eastern yards on medium bar steel, but low bidders on most proposals are scattered.

Boston—Bids close March 7 on 100 tons of hot-rolled manganese steel for the Springfield arsenal.

Philadelphia—Steel bar prices appear to be the firmest of the major steel products, holding at 1.50c, Pittsburgh, for carlots. Trading in bars is slack.

Pittsburgh — Steel bar specifications are tending downward slightly as a result of reduction in requirements of some automotive interests. Total business is little changed from the January rate. The market continues 1.50c, Pittsburgh.

Cleveland—Demand for soft steel bars still is limited, with rumors of price stabilization still lacking confirmation in actual announcement. Lower specifying for bar stock noted week before last was apparently continued into last week. Cleveland base of 1.55c for both local and outside delivery is unchanged.

Chicago — Despite recent spurts, shipping orders for bars and other heavy finished products since the first of the year have averaged about the rate of early January, or a little above 25 per cent. Cold-rolled finishers and automotive parts makers are leading buyers of bar products. The bar price is 1.60c to 1.70c, mill. Farm equipment orders are disappointing. Tractor production will be virtually stopped by March 1, as relatively large stocks have accumulated, but hay tool and harvester output is scheduled to continue at about 20 per cent through March and at least part of April. Rail steel bar mills at Chicago Heights are operating 35 to 40 per cent on day-to-day business. Soft steel and alloy bar mills average 25 to 30 per cent.

Birmingham, Ala., chamber of commerce has taken over the Birmingham industrial board, of which H. C. Ryding, president of the Tennessee Coal, Iron & Railroad Co., is president. Mr. Ryding will continue in this work.

Tin Plate Demand Is Below Seasonal Average

Tin Plate Prices, Page 43

Pittsburgh—Tin plate specifications are light and lack the improvement usually experienced at this period. Operations, at slightly above 35 per cent, also are below the seasonal average. Although the leading canmaker has placed most of its tin plate orders some tonnage remains to be allocated. Tin plate continues $4.75, Pittsburgh, per base box.

Youngstown, O.—Tin mill activity has tapered and not much is expected for a few weeks until northwestern fish packers have gaged their seasonal needs. Other lines are taking about their usual tonnages. Tin plate for contract is quoted at $4.75, Pittsburgh, per base box.

Cold Finished Buying Is Under January Rate

Cold Finished Prices, Page 43

Pittsburgh—Incoming business in cold-finished steel bars remains slightly below the January average. Orders from only a few automotive companies show improvement, with total business tending downward. Betterment is looked for with the approach of more active operations by the Ford Motor Co. The market continues 2.00c, Pittsburgh.

Caspers Tin Plate Co., 3424 West Forty-eighth place, Chicago, has increased capital from $150,000 to $300,000.

Plates

Railroad Shop Demands Slightly Heavier—9600 Tons Required For Two Government Dredges

PLATE PRICES, PAGE 43

New York—Approximately 1000 tons of plates will be required for a tunnel lining awarded to Alco Products Inc., for a municipal aqueduct. Business generally is light, with carlot orders at 1.60c, base, Coatesville, Pa.

Snead & Co., Jersey City, N. J., have been awarded the contract for stacks for the University of Texas library, Austin, Tex., requiring several hundred tons of plates, shapes, sheets and miscellaneous steel.

United States coast guard, Washington, closes bids March 8 on two patrol boats requiring a total of 500 to 600 tons of plates and shapes.

Boston — Plate demand is light. Prices are fairly steady at 1.60c, Coatesville; 1.50c, Pittsburgh, or 1.92c, delivered, Boston. Tank and boiler requirements are small. Bids close Feb. 25 on repairs to four quartermaster steamers at Fort William, Me.; March 1 on pumping equipment at the Horn Pond station, Woburn, Mass., and Feb. 25 on the Squantum pumping station building.

Philadelphia — Construction contracts for two government dredges requiring a total of 9600 tons of plates have been placed, one with the Dravo Contracting Co., Pittsburgh, and the other with the Dubuque Boat & Boiler Co., Dubuque, Iowa. A few hundred tons will be required for reconditioning four American Scantic line boats, contracts for which have been awarded. The market is quiet, and prices are unsettled, carload orders being easy at 1.60c, base, Coatesville, Pa.

Pittsburgh—Plate demand is quiet and unchanged while the outlook is dimmed by quietness in inquiry for fabricated work. No new business in barges or freight cars is in early prospect. Plates continue 1.50c, Pittsburgh.

Cleveland—Plate producers are encouraged by a steadier and larger flow of small orders. Customers show less prejudice against stocking plates. Oil refinery plates seem slightly more active. Bids close March 1 by East Cleveland, O., for a 1,000,000-gallon water tank. Efforts toward price stabilization are reported but the market generally is 1.50c, Pittsburgh. R. W. Kaltenback Corp., Bedford, O., is low on two 25-ton floating cranes for San Diego and Mare Island, Calif., requiring 1000 tons of plates and shapes and 200 tons of machinery.

Chicago — Oil tank work again

has slackened. Skelp shipments to the Milwaukee pipe fabricators are at a low rate. Kansas City has awarded 125 tons of plates for a water pipe line. The plate base is 1.60c, Chicago. Production is about 25 per cent. Resumption of railroad shops is stepping up specifications slightly.

Contracts Placed

500 tons, helium tanks at Sunnyvale, Calif., to A. O. Smith Corp., Milwaukee.

125 tons, skelp for 42-inch water pipe line, Kansas City, Mo., to Kansas City Structural Steel Co., Kansas City.

Contracts Pending

9600 tons, two government dredges, one each awarded to Dravo Contracting Co., Pittsburgh, and to Dubuque Boat & Boiler Co., Dubuque, Iowa.

1500 tons, pipe line, Metropolitan district water system, Boston, for Newton, Mass.

1000 tons, plates and shapes, two dredges for United States engineer's office, St. Louis; Dravo Contracting Co., Pittsburgh, low bidder.

500 tons, plates and shapes, two patrol boats for United States coast guard, Washington; bids March 8.

120 tons, 1,000,000-gallon water tank, East Cleveland, O. Funds appropriated. Bids March 1.

100 tons, plates and shapes, 200,000-gallon tank, 112-foot tower, Marshfield, Calif., constructing quartermaster; bids March 7.

Unstated tonnage, one 2½-yard steel hull dipper dredge, United States engineer, Pittsburgh; bids March 15. For Huntington, W. Va., engineer, one steel hull 15-ton derrick-boat for delivery to Marietta, O.; bids March 17.

Unstated tonnage, 100,000-gallon steel water tank and tower, army ordnance department, Erie ordnance depot, La-Carne, O.; bids March 7.

Unstated tonnage, tank and tower, quarantine station, Charleston, S. C.; Jones Bros. & Co., low.

New Foundry Line Offered

M. E. Wallace Co. Inc., Sunbury, Pa., has developed a new line of foundry plumbago and mold dressing material. The company has been making a specialized line of facings and blackings for a number of years, especially for cast iron pipe and car wheel foundries. Marshall Houskeeper, Wayne, Pa., has been elected secretary and director. He has been associated with the foundry industry for over 25 years and recently was connected with Charles Pettinos, New York. For the past two years he has conducted his own business as a producer of foundry sands and will continue that activity in addition to his connection with the Wallace Co.

Highway Steel Products Co., Chicago Heights, Ill., has increased its capital stock from $20,000 to $50,000 and directors from three to five.

Railroads

Nickel Plate Buys 19,000 Tons Rails—Repairs to 100 Hoppers Placed—Expect Car Buying

TRACK MATERIAL PRICES, PAGE 43

New York—Car buying is negligible, although railway supply circles are encouraged over the possibility that leading carriers may obtain financial aid through the Reconstruction Finance Corp. Some substantial rail inquiry is expected to develop by early March.

Delaware, Lackawanna & Western railroad has not closed on 1932 rail requirements under bids opened Feb. 8, being undecided as to quantity. The railroad has closed on spikes, tie plates, track bolts and angle bars with Bethlehem Steel Co.

Pennsylvania railroad opens bids Feb. 25 on approximately 130 tons of steel axles, not over 735 tons rough steel tires, and 1970 car wheels.

Pittsburgh—Miscellaneous specifications from railroads are slightly more active. Incoming business continues at a sharply depressed rate, however, and inquiry indicates no material improvement soon. Pending work includes fastenings for the Nickel Plate and Erie railroads to accompany recent rail orders.

Cleveland—Though lacking formal announcement, allocation among four rail mills has been made of the Nickel Plate's steel rail requirements for 1932. The order involved 19,000 to 20,000 tons of standard rails and was reported approximately evenly split among Bethlehem Steel Co., Carnegie Steel Co., Illinois Steel Co., and Inland Steel Co. No inquiry for rail fastenings to accompany this order has yet been made, but probably will come out soon and will invoive about 4000 tons of tie plates, spikes and rail anchors.

Chicago—Track fastenings specifications for maintenance work still are of consequence, despite the fact that there is no active track laying. About 2000 tons was booked during the week. Pacific Fruit Express will proceed with the purchase of 100 70-ton refrigerator cars. While Wheeling & Lake Erie railroad has an inquiry out for 50 to 100 70-ton gondolas, it is not believed these will be placed here.

Alton is taking bids on the dismantling or the sale of 116 locomotives, 8000 miscellaneous freight cars and 100 passenger cars.

Missouri Pacific has been granted authority for laying 35 miles of new rail on Texas properties at a cost of approximately $400,000. Northern Pacific is planning a program of rail replacement, and will add a force of several thousand to its equipment maintenance departments.

Car Orders Placed

Belt Railway of Chicago, repairs to 100 hopper cars, to Pressed Steel Car Co., Pittsburgh.

Hauser Construction Co., two air-dump cars, to Magor Car Corp., New York.

Kansas City Southern, 25 7-ton gondolas, to own shops.

Rail Orders Placed

Nickel Plate, 19,000 to 20,000 tons, 1932 requirements, divided approximately evenly among Carnegie Steel Co., Pittsburgh; Bethlehem Steel Co., Bethlehem, Pa.; Illinois Steel Co. and Inland Steel Co., Chicago.

Car Orders Pending

Pacific Fruit Express, 100 70-ton refrigerator cars, may be built by Southern Pacific.

Wheeling & Lake Erie, 50 to 100 70-ton gondola cars.

Rail Orders Pending

Board of Transportation, New York, 4400 tons; Bethlehem Steel Co., Bethlehem, Pa., low. Rail Joint Co. low on angle bars. Ramapo-Ajax Corp. low on frogs and switches.

Board of transportation, 900 tons tie plates and unstated tonnages spikes; low bidders not yet ascertained.

Chicago & Alton, 7000 tons, formal inquiry may be out soon.

Semifinished Market Shows Firmer Tone

Semifinished Prices, Page 50

Pittsburgh—Sales of semifinished steel are quiet and unchanged. Prices are receiving little test but a slightly stronger tone is noted. Rerolling billets and slabs usually are $27, Pittsburgh, with sheet bars $26, and forging billets $34. Wire rods are quiet, producers usually quoting $27. Consumption shows little change from the January rate.

Philadelphia—The market for billets is exceptionally quiet. Prices are unchanged.

Youngstown, O.—Sheet bar and billet demand still is restricted. No effort is being made toward signing term contracts. Billets and slabs are held more firmly at $27, Youngstown, Pittsburgh and Cleveland; and sheet bars, at $26.

Structural Shapes

Prospects Brighten as New York Inquiry Bulges—7500-Ton Newark, N. J., Postoffice Due — Three Pennsylvania Bridges Take 2000 Tons—Chicago Outlook Duller

STRUCTURAL SHAPE PRICES, PAGE 43

New York—Bids close March 21 on the Newark postoffice and courthouse, requiring about 7500 tons of structurals, while closing dates for marine hospital buildings at Norfolk, Va., and a postoffice addition at Washington, March 7 and 29 respectively, will take several thousand tons. Lettings are light. American Bridge Co. booked slightly more than 1000 tons for a state bridge near Trenton, N. J. Plain material prices on attractive tonnages are none too firm at 1.60c eastern mill. With a probable wage reduction of 25 per cent May 1, private construction is not expected to show any gains before that date at least.

Boston—Structural steel lettings in New England approached 3000 tons for the week, led by 2000 tons for the Christian Science Publishing society plant placed by the Aberthaw Construction Co. A city hospital laundry building took 300 tons, the remainder being divided among small contracts. Prices on plain material are easy at 1.60c, eastern mill, or 1.50c, Pittsburgh. Bids close March 3 on a postoffice at Manchester, Conn. V. & M. Construction Co., Yonkers, N. Y., is low on coast guard buildings at New London, Conn., with $96,898.

Philadelphia—Interest in the local market centers in the opening Feb. 24 on the 4000-ton Franklin memorial job. Sentiment is also heartened by the possibility that the Pennsylvania railroad may, despite reports to the contrary, gain financial aid from the Reconstruction Finance Corp., which will enable it to increase its electrification schedules here. Shapes are 1.55c to 1.60c, nearest mill, in carlots.

Pittsburgh—Structural inquiry is slow to expand. Awards hold at their recent quiet rate. Plain shapes are 1.50c, Pittsburgh.

Cleveland—Considerable interest hinged last week on opening of bids for the Detroit postoffice, 21 contractors bidding, two from this district. At last report, Great Lakes Construction Co., Chicago, was low, with no award having been made. About 1950 tons in three Pennsylvania state highway bridges are providing figuring for local structural interests, the jobs going in Feb. 28. A job recently let at Toledo, O., was awarded fabricated on the basis of between $40 and $42, delivered. Plain material is without change at 1.50c, Pittsburgh.

Chicago—Future structural business continues unpromising. About 1000 tons in Century of Progress exposition work will be out within the next two weeks. Another river-dam project of 1000 tons is being revived at Marseilles, Ill. About 3500 tons for service bridges and gates for the Mississippi river roller dams and locks at Rock Island, Ill., has been let, 1700 tons of which was taken at Pittsburgh. Plain material is quoted 1.60c to 1.70c, Chicago.

St. Louis—Bids will be called for during the next few weeks by the board of public service, St. Louis, for materials to go into the new municipal auditorium, for which there has been a bond issue of $4,500,000. Present plans call for approximately 3000 to 4000 tons of structural steel.

Contracts Placed

2000 tons, publishing plant and other buildings, Christian Science Publishing society, Boston, to American Bridge Co., Pittsburgh; Aberthaw Construction Co., Boston, contractor.

1700 tons, roller gate dam and power house, Rock Island, Ill., to American Bridge Co., Pittsburgh, through S. A. Healy Co., Detroit, contractor. Reported in STEEL, Feb. 18, to unstated.

1600 tons, approaches, University bridge Seattle, to Wallace Bridge & Structural Steel Co., Seattle; General Construction Co., Seattle, contractor.

1050 tons, highway bridge, Mercer county, New Jersey, to American Bridge Co., Pittsburgh; Parker & Graham, contractors.

930 tons, Fitzgerald Mercy hospital, Darby, Pa., to American Bridge Co., Pittsburgh.

842 tons, pier sheds, Wilmington, Calif. (Los Angeles harbor), to McClintic-Marshall Corp., Bethlehem, Pa.

800 tons, hospital, Brooklyn, N. Y., to American Bridge Co., Pittsburgh.

800 tons, engine and aircraft overhaul shop, bureau of yards and docks, navy department, Pearl Harbor, T. H., to Beimont Iron Works, Philadelphia; Newport Contracting & Engineering Co., Lee Hall, Va., contractor; 60 tons of reinforcing bars pending.

750 tons, postoffice, Long Beach, Calif., to Consolidated Steel Corp., Los Angeles.

600 tons, baseball park, Columbus, O., for Columbus Baseball club, to International-Stacey Corp., Columbus, O.; R. L. Wirtz, Columbus, contractor.

350 tons, plant, Slauson and Eastern avenues, Los Angeles, for Chrysler Motor Corp., Detroit, to Consolidated Steel Corp., Los Angeles. Incorrectly reported in STEEL, Feb. 18, to McClintic-Marshall Corp., Bethlehem, Pa.

300 tons, laundry building, Boston city hospital, Boston, to Boston Structural Steel Co., Boston; James H. Ritchie & Associates, architects.

275 tons, Grant store, 425 South Broadway, Los Angeles, to Minneapolis-Moline Power Implement Co., Minneapolis.

262 tons, bridge, Swan creek, Michigan, for Michigan highway department, to Lackawanna Steel Construction Co., Buffalo.

250 tons, nurses' home, Wauwatosa, Wis., to Milwaukee Bridge Co., Milwaukee.

250 tons, filtration plant, Ft. Wayne, Ind., to Bass Foundry & Machine Co., Ft. Wayne.

250 tons, three buildings, Bureau of Roads department, Vancouver, Wash., to Poole & McGonigle, Portland, Oreg.

225 tons, bridge, Ione, Wash., to Illinois Steel Bridge Co., Jacksonville, Ill.

220 tons, 4-story dormitory, Wellesley college, Wellesley, Mass., to New England Structural Steel Co., Boston; W. T. Aldrich, architect.

200 tons, Lake Michigan car ferry parts, to Wisconsin Bridge & Iron Co., North Milwaukee, Wis.

217 tons, postoffice, Okmulgee, Okla., to Ingalls Iron Works Co., Birmingham, Ala., and Verona, Pa.

190 tons, coliseum, Oklahoma City, Okla., to Capitol Steel & Iron Co., Oklahoma City; W. S. Bellows Construction Co., contractor.

170 tons, ice cream plant, South Bend, Ind., to McClintic-Marshall Corp., Bethlehem, Pa.

160 tons, incinerator, Washington, D. C., to Dietrich Bros., Baltimore.

150 tons, church, Lancaster, Pa., to A. B. Rote & Co., Lancaster, Pa.

150 tons, building, Toledo, O., for Catha Building Co., to Ingalls Iron Works Co., Birmingham, Ala., and Verona, Pa.

100 tons, shapes and bars, bridge, Oklahoma City-Spencer, Okla., to Capitol Steel & Iron Co., Oklahoma City; J. W. Hopper, Oklahoma City, contractor.

100 tons, addition to state hospital, Stockton, Calif.; bids March 1.

100 tons, freight station, Germantown, Pa., for Reading Co., to Norris Iron & Wire Co., Bridgeport, Pa.

100 tons or more, with alternates for additional units, galvanized steel skel-

Awards Compared

	Tons
Awards, week ended Feb. 20	**12,791**
Awards, week ended Feb. 13	**12,700**
Awards, week ended Feb. 6	**14,526**
Awards, this week in 1931	**10,361**
Av. weekly awards, 1931....	**34,236**
Av. weekly awards, 1932	**14,493**
Av. weekly awards, Jan.	**16,346**
Total awards to date, 1931	**184,019**
Total awards to date, 1932	**115,938**

eton towers, unstated locations, department of commerce, to Missouri Rolling Mills Corp., St. Louis; opening of Jan. 22.

Contracts Pending

15,000 tons, postoffice, Detroit; Great Lakes Construction Co., Chicago, contractor.

7500 tons, deckwork, viaduct, route 25, New Jersey; readvertised bids March 9.

7500 tons, postoffice and court house, Newark, N. J.; bids March 21.

3000 to 4000 tons, municipal auditorium, St. Louis. Bids soon by board of public service, St. Louis. Bond issue of $4,500,000 authorized.

2800 tons, pier 34, New York; Babor & Comeau, low.

1950 tons, three state bridges, Pennsylvania, as follows: 1015 tons in Westmoreland county; 590 tons in Lawrence county; 345 tons in Crawford county. Bids at Harrisburg, Pa., Feb. 28.

1000 tons, plates and shapes and 200 tons of machinery for two 25-ton floating cranes for San Diego and Mare Island, Calif.; R. W. Kaltenback Corp., Bedford, O., low.

1000 tons, Federal and States building, Century of Progress exposition, Chicago; plans to be completed in about two weeks.

1000 tons, dam, Marseilles, Ill.; revived.

1000 tons, United States appraisers store building, Chicago.

1000 tons, four bridges, Michigan highway commission, requiring 600 tons structural and 400 tons sheet piling.

800 tons, county bridge, Niles, O.; American Bridge Co., Pittsburgh, low. E. H. Latham & Co., Columbus, O., contractor.

635 tons, bridges, New Orleans levee district; John Klorer, chief engineer, New Orleans.

500 tons, bridges and railroad station, Quincy, Mass.; postponed to 1933.

500 tons, bridges, Nebraska.

400 tons, bridges, Illinois; bids March 9.

300 tons, addition, postoffice, Macon, Ga.; Concord Construction Co., Philadelphia, low.

270 tons, postoffice, Cumberland, Md.; John Grant & Sons, Cleveland, contractors, low.

270 tons, hospital, Norristown, Pa.; McCormick-Lenham Co., Philadelphia, low.

250 tons, battery storage and overhaul substation, Mare Island navy yard, Mare Island, Calif.; Barrett & Hilp, San Francisco, general contractor. Subcontracts to be let shortly.

250 tons, bridges and highway, Jackson county, Oklahoma, bids in; also 75 tons reinforcing bars.

243 tons, Ione bridge, Pend Oreille county, Wash.; Colonial Building Co., Spokane, contractor.

198 tons, bridgework, Cotton county, Oklahoma highway commission; bids in.

175 tons, addition to pier shed No. 2, Oakland, Calif.; Moore Drydock Co., Oakland, low.

155 tons, Belmont avenue subway, Fresno, Calif., for Fresno county; bids opened.

100 tons, service station, Syracuse, N. Y., for Goodyear Tire & Rubber Co., Akron, O.

Unstated tonnage, manufacturing buildings, Mannington Mills Inc., Salem, N. J.; specifications soon.

Unstated tonnage, state bridges, Pennsylvania, at Vandergrift and Newcastle, Pa.

Concrete Bars

Maine Highways Close on 1350 Tons—New York Price Eases—Illinois to Buy 700 Tons March 9—St. Petersburg, Fla., Hospital Bought —Much Buying Deferred

REINFORCING BAR PRICES, PAGE 43

New York — Reinforcing bar awards continue light with considerable work temporarily held up. Close to 310 tons for a state project at Sing Sing prison and 140 tons for a state bridge, Mercer county New Jersey, were placed. Prices have generally slumped to 1.85c, New York, on mill lengths. The Johnson, Drake & Piper Southern State Parkway contract requires 30,000 square yards of standard New York reinforcing, mesh or bar welded mats, and 13 tons of malleable iron castings.

Boston — Buying of reinforcing bars is in small lots, the aggregate tonnage placed being light. Pending volume is also light. Prices are easy at 1.50c, Pittsburgh, or 1.92c, Boston, on mill lengths.

Philadelphia—Award of 170 tons in the Catholic hospital, Darby, Pa., features the market. Buying of 150 tons for the Coatesville, Pa., sewage plant is expected, also 125 tons in the state hospital, Danville, Pa. The market is easy at 1.60c, Pittsburgh, on mill lengths.

Buffalo—Demand for reinforcing bars is improving slowly, but sellers believe the early future will see a marked trend for the better. Some projects of long standing are rapidly nearing contract stage. Plant operations continue slow.

Cleveland—Last of the state highway lettings, which terminated Feb. 16, is being cleaned up,insofar as concreate reinforcing steel purchases are concerned. However, buying is all in small lots. Pollak Steel Co. booked about 32 tons for the Jefferson county, Ohio, bridge through Peter Yandrich, Amsterdam, O. Local building is at a standstill, though 600 tons in the Newcastle, Pa., state bridge is attracting bids here.

Pittsburgh—Reinforcing inquiries are slightly more numerous. Inquiry includes highway bridges in this district and an unstated tonnage for a veterans' hospital here. The market usually is quoted 1.60c, Pittsburgh, with lower prices applied on more desirable tonnages.

Chicago—Reinforcing fabricators have scant backlogs. Doubt is expressed as to whether state funds will permit newly authorized road surfacing projects to go ahead in several of the North Central states, but work already started will be completed. About $3,000,000 in Illinois road and bridge building is advertised for March 9, involving about 700 tons of reinforcing bars. Billet bar prices are quoted 1.75c, but bids recently were submitted with prices under that figure.

Awards Compared

	Tons
Awards, week ended Feb. 20	4,401
Awards, week ended Feb. 13	7,120
Awards, week ended Feb. 6	2,795
Awards, this week, 1931....	6,498
Av. weekly awards, 1931....	6,808
Av. weekly awards, 1932....	5,819
Av. weekly awards, Jan.....	7,144
Total awards to date, 1931	54,602
Total awards to date, 1932	46,554

Contracts Placed

1350 tons, state highway commission, Augusta, Me., to Bancroft & Martin Rolling Mill Co., Portland, Me., at 2.71c.

746 tons, approaches, University bridge, Seattle, to Pacific Coast Steel Corp., Seattle; General Construction Co., Seattle, contractor.

640 tons, buildings and utilities, veterans' hospital, St. Petersburg, Fla., to Concrete Steel Co., New York; James I. Barnes, Logansport, Ind., contractor. Structural, 100 tons, pending.

310 tons, power house, knit shop and tunnels, Sing Sing prison, Ossining, N. Y., to Igoe Bros., Newark, N. J.; Louis Levine, New York, contractor.

230 tons, Hamilton county (Cincinnati) improvement on Delhi road, to Jones & Laughlin Steel Corp., Pittsburgh. Brewer & Brewer Sons Inc., Cincinnati and Chillicothe, O., contractor.

180 tons, state highway bridges and box culverts, highway 17, project 516-B, Jeff Davis county, Texas, to Sheffield Steel Corp., Kansas City, Mo.; E. J. Johnson, Dallas, Tex., contractor. Wyatt Metal & Boiler Works, Dallas, awarded 75 tons steel cylinders for foundations.

180 tons, state highway, route 26, Pecos county, Texas, to Concrete Engineering Co., Omaha, Nebr.; E. D. Porter, San Angelo, Tex., contractor.

170 tons, Catholic hospital, Darby, Pa., to Gilmour Steel Products Co., Philadelphia.

150 tons, Juniata bridge, King county, Washington, to Northwest Steel Rolling Mills, Seattle.
140 tons, state bridge, Mercer county, New Jersey, to Rawlings Steel Co., New York; Parker & Graham, contractors.
105 tons, government irrigation power house, Prosser, Wash., to unnamed interests.
100 tons, postoffice, Okmulgee, Okla., to Connors Steel Co., Birmingham, Ala.; Algernon Blair, Montgomery, Ala., contractor.
100 tons, government irrigation project, Owyhee, Oreg., to unnamed interests.
100 tons, government dam, Cle Elum, Wash., to unnamed interests.

Contracts Pending

700 tons, Illinois road and bridge projects; bids March 9.
600 tons, state bridge, Newcastle, Pa.; bids Feb. 28.
250 tons, state reformatory, Elmira, N. Y.
250 tons, postoffice, Davenport, Iowa.
240 tons, grade separation, Kenosha county, Wisconsin; bids Feb. 25.
200 tons, postoffice, Terre Haute, Ind.
175 tons, substructure and approaches, state bridge, Monocacy river, Maryland; Forbes-Murphy Construction Co., Baltimore, contractor.
150 tons, sewage plant, Coatesville, Pa.
125 tons, state hospital, Danville, Pa.
110 tons, highway and bridges, Jackson county, Missouri; Feb. 23.
100 tons, state highway, Mississippi; bids Feb. 23.
Unstated tonnage, six buildings for veterans' hospital at Aspinwall, Pa.; bids close March 1.

Forecast 6 Per Cent Drop In Freight Car Loadings

Freight car requirements of the United States in the first quarter of 1932 are estimated at 5,241,746, compared with 5,612,161 in the first quarter of 1931, as compiled by the regional shippers' advisory boards. These boards estimate loading of iron and steel in the first quarter will total 273,716 cars, against 312,745 in the first quarter of 1931. For coal and coke the estimated car loading in the first quarter is 1,970,859, against 2,088,414 a year ago.

Gets Braddock Plant

Pittsburgh—As part of the program of the United States Steel Corp. to realign production on a more economical basis, the Carnegie Steel Co. has acquired the property of the American Steel & Wire Co., also a Corporation subsidiary, at Braddock, Pa. Preliminary to new construction, the Steel & Wire plant there is being razed.

Timken Roller Bearing Co., Canton, O., has declared regular quarterly of 50 cents a share, payable March 5 to record Feb. 19.

Pipe

Municipal Awards More Active In Middle West—6200 Tons For Three Public Projects

PIPE PRICES, PAGE 57

Chicago—Several important municipal cast pressure pipe orders have been closed. St. Louis county, Mo., has let 3000 tons to United States Pipe & Foundry Co., at $32, Birmingham, Ala. St. Paul, has awarded 1500 tons of 6 to 12-inch pipe. Minneapolis has let 30,000 feet, 1700 tons, of 6 to 16-inch. Flora, Ill., has taken bids on 900 tons of 10 to 12-inch, and will order additional miscellaneous sizes for filter plant construction. Six to 24-inch sizes are quoted $38.40 to $40.40, delivered Chicago.

Boston—Municipal inquiry for cast pipe is light, although utilities are in the market for small tonnages. Gas companies at Providence, R. I., and Lynn, Mass., have figures on small sizes which fail to add strength to a weak market, under $25, foundry, being quoted on less than 200 tons. For an installation at Newton, Mass., the metropolitan water commission, will purchase steel pipe, requiring about 1500 tons of plates.

New York—Utility buying is light, Brooklyn Union Gas Co. splitting a recent order between a southern and a New Jersey foundry. Brooklyn Borough Gas Co. is in the market for a tonnage of 16-foot lengths. Consolidated Gas Co., Baltimore, has closed on close to 900 tons with a New Jersey foundry. Municipal buying is curtailed and prices continue weak with $30 and under quoted on pipe delivered in this territory. The subway section at Newark, N. J., will take 150 tons.

Pittsburgh — Pipe demand shows no improvement. Standard pipe jobbers are carrying light stocks. Line pipe inquiry still is lacking. Oil country goods are extremely dull, while activity in tubes and tubing is quiet and unchanged.

Detroit—Negotiations for a pipe line for natural gas from central Indiana, 200 miles to Detroit, still are in progress, according to Charles W. Bennett, vice president and general manager, Detroit City Gas Co. This project would require approximately 35,000 tons of pipe. The connection would be made with mains of the Columbia Gas & Electric Co.

Birmingham, Ala.—While several orders have been placed, operations at cast iron pipe plants have not been increased above 40 per cent. Confidence is expressed that spring business will be good.

Cast Pipe Placed

3000 tons, 6 and 12-inch for St. Louis county, Mo., to United States Pipe & Foundry Co., Burlington, N. J., at $32, Birmingham.
1700 tons, Milwaukee; 1200 tons of 12-inch to Donaldson Iron Co., Emaus, Pa., and 500 tons of 16-inch to Glamorgan Pipe & Foundry Co., Lynchburg, Va.
1500 tons, 6 to 12-inch, St. Paul, to United States Pipe & Foundry Co., Burlington, N. J.
630 tons, Fort Worth, Tex., to United States Pipe & Foundry Co., Birmingham, Ala., $22,942.

Cast Pipe Pending

900 tons, 10 to 12-inch, Flora, Ill., bids in; additional miscellaneous sizes also to be purchased later for filter plant.
400 tons, under 16-inch, Providence Gas Co., Providence, R. I.; bids in.
300 tons, state project, Brentwood, Long Island, N. Y.
250 tons, up to 16-inch, sewage disposal plant, Walkill, N. Y.
250 tons, 8-inch class 150, Sunnyvale, Calif., dirigible base; general contract to M. Rosenberg, San Francisco.
241 tons, 6 to 12-inch class 150, Beverly Hills, Calif.; bids March 1.
160 tons, small sizes, Lynn Gas Co., Lynn, Mass.; R. D. Wood & Co., Florence, N. J., low.
150 tons, subway section, Newark, N. J.; J. Rich Steers Inc., contractor.
100 tons, 6-inch, quartermaster, Camp Knox, Ky., bids Feb. 27.
100 tons, various sizes, Cambridge, Mass., bids in.

Steel Pipe Pending

100 tons, mainly 20-inch pontoon and shore pipe, and miscellaneous steel materials and fittings, United States engineer, New York; bids Feb. 25.
Unstated tonnage, 10,620 feet, up to 3-inch, black welded steel pipe, Panama; Greene-Wolf Co., New York, low.
Unstated tonnage, 500 feet, 3-inch standard wrought iron or steel, and 3500 feet extra strong wrought iron or steel, mainly 2-inch, Panama; Laclede Tube Co., St. Louis, low.

Horse Shoes Survive

Chicago—Army quartermaster for this district has bought 127 tons of mule shoes delivered, at 4.75c, and 18 tons of horseshoes.

Imported Spar Up $1

New York—Imported fluorspar has been advanced $1 per gross ton to $19.50, duty paid.

Strip

Second Quarter Inquiry Light and Price Not Determined—Price Stability Seen

STRIP PRICES, PAGE 43

Pittsburgh — Steel strip producers are more united in adhering to minimum quotations of 1.40c and 1.50c on hot strip. Smaller buyers, as in the recent past, are paying $1 a ton above these levels. Second quarter inquiry so far is light and producers have made no announcement regarding quotations for that period. Incoming business is fairly steady and slightly ahead of the January rate. Ford orders are limited to small lots but parts suppliers are seeking prompter delivery on material for parts for this interest. Mill operations continue 20 to 25 per cent.

Philadelphia—Hot-rolled strip is quiet at 1.40c and 1.50c, Pittsburgh, for wide and narrow and 1.90c, Pittsburgh, for cold-rolled.

Washington—Pacific Coast Steel Corp., San Francisco, is low on 128,800 pounds of flat steel for the navy, Mare Island, at $2591, delivered, while Republic Steel Corp., Youngstown, O., is low, f.o.b., with $2020.76.

Youngstown, O. — Conservative buying of strip steel rules in the automotive trade as in others. Miscellaneous lines consuming the narrower widths also appear slow in resuming seasonal production.

Hot-rolled narrow strip is 1.50c to 1.60c, Pittsburgh, and wide strip 1.40c to 1.50c; cold-rolled ranges from 1.90c to 2.00c, Pittsburgh. Sympathetically with sheet price reaffirmations, strip quotations appear somewhat firmer.

Cleveland—Were it not for hot-rolled strip orders of two or three fairly large accounts here last week, February would be dragging behind January in total sales, for during February small users have tapered their needs. The market still displays spottiness. The general hot-rolled price of 1.45c and 1.55c, Pittsburgh, is still awaiting stabilization, as concessions appear under this figure to the attractive buyer. For cold strip, 1.90c to 2.00c, Cleveland, is the going figure.

Operations Off to 25 Per Cent; Hold This Week

Pittsburgh — Ingot production held for the second week at 23 per cent, with no substantial change in either direction scheduled for this week. Operations of blast furnaces remain at 9 active steelworks stacks of 54. Output of finishing mills is steady, tin plate continuing 35 to 40, sheets 25, strip and pipe 20 to 25. Shenango Furnace Co. has resumed operations at one of its Sharpsville, Pa., stacks which had been banked for several weeks.

Philadelphia—Eastern steelworks operations were down fractionally to 17 per cent last week. Little change is expected this week.

Operations, week of Feb. 20	**25**
Operations, week of Feb. 13	**27**
Operations, week of Feb. 6	**28.5**
Operations, this week, 1931	**53**
High, 1931-32 (March 19)	**57**
Low, 1931-32 (Dec. 26)	**15-20**

Buffalo — Buffalo steelworks operations ran far ahead of the anticipated rate for a portion of last week, holding at 37 per cent for the early part and then being curtailed to 27 per cent by staggered operations. Indications point to a probable 37 per cent rate again this week, with 14 open hearth furnaces on.

Youngstown, O.—District steel plant operations averaged 34 per cent last week, off one point from the prior week, and were expected to hold unchanged at the current week's start. Twenty-four of 68 open-hearth furnaces are melting, against 25 a week ago. The market for all classes of tubular goods continues dull, while sheet and strip buying is slightly more active.

Cleveland—At 35 per cent of capacity last week, steel mills here were down three points from the week prior. The 35 per cent level will be continued into this week unchanged and represents five open hearths on at Corrigan, McKinney Steel Co., four at American Steel & Wire Co., and three at Otis Steel Co.

Chicago—Ingot production in the week just closed was slightly under 25 per cent, down 2 points, and about 25 per cent production is scheduled for this week. The 25 per cent rate compares with 47 per cent a year ago, and 85 to 90 per cent in 1930. Nine of the district's 36 steelworks blast furnaces are active.

Birmingham, Ala. — Ten 140-ton open-hearth furnaces by the Tennessee Coal, Iron & Railroad Co. at Ensley-Fairfield and two 90-ton furnaces at Gadsden of the Gulf States Steel Co. have kept steel mills operations at 53 per cent capacity. Additional orders from railroads are expected daily to warrant continued operations of Ensley works.

Warehouse Demand Fails To Make Seasonal Gain

Warehouse Prices, Page 57

Pittsburgh — Sales are tending downward, the volume this month being slightly below the January rate. Prices are unchanged.

New York—No. 10 blue annealed sheets have been marked to 3.00c for any quantity by local jobbers. Other sheet prices, while officially unchanged, are easy.

Philadelphia — Buying of steel products from warehouse is being maintained at a slightly higher rate than prevailed in January. Prices have undergone no change.

Detroit—Steel products being ordered from warehouse show no appreciable change and thereby presage a spring upturn somewhat delayed from normal. Prices are unchanged.

Cincinnati—A slightly better warehouse volume during the past week was attributed to seasonal influences. Demand for building materials continues disappointing. Quotations are steady.

St. Louis—Warehouse sales are irregular but improving steadily. Prices are steady. General manufacturing shows most improvement.

Announce Date for Natural Gas Meeting in Tulsa

New York—Preliminary arrangements are being made for the annual meeting of the Natural gas department of the American Gas association at the Mayo hotel, Tulsa, Okla., May 9-11.

Subjects to be discussed include conservation of natural gas, large diameter transmission lines and pipe line bridges versus multiple lines for river crossings.

Installing New Equipment

Youngstown Sheet & Tube Co. is expending $150,000 at its Campbell works, Youngstown, O., for installing equipment carrying gas between its blast furnaces and coke plant.

Raw Material Prices

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago furnace	$16.50
Pittsburgh, dist. fur.	16.00
Pittsburgh, delivered	16.63 to 17.13
Valley furnace	15.50
Cleveland fur., local del.	16.00
Philadelphia, delivered	15.26 to 15.76
Virginia furnace	17.50
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	19.91 to 20.41
Buff., all-rail, Brooklyn	19.40 to 19.90
Buff., all-rail, Newark	17.78 to 18.28
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	16.50 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.90 to 20.40
Buffalo, all-rail Newark	18.28 to 18.78
Buff., all-rail, Boston	20.91 to 21.41
Virginia furnace	18.00
Eastern, del. Phila.	15.76 to 16.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila.	16.26 to 16.76

MALLEABLE

Valley furnace	15.50 to 16.00
Cleveland fur., local del.	16.00
Pittsburgh dis. fur.	16.00
Pittsburgh, delivered	16.63 to 17.13
Chicago, furnace	16.50
Buffalo fur., local del.	15.50 to 16.00
Eastern Penna., delivered	17.76 to 19.91
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Eastern Penn., del.	15.50 to 16.00
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	15.00

BESSEMER

Valley furnace	16.00
Pittsburgh, delivered	16.63 to 17.13
Pittsburgh, furnace	16.00

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	15.50
Pittsburgh district fur.	15.50
Pittsburgh, delivered	16.13 to 16.63

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19.50; 15—$23 to $24.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.25
Connellsville foundry	3.25 to 4.50
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.76 to 9.16
Chicago, ovens	7.50
New England, del.	10.50
St. Louis, del.	8.50
Birmingham, ovens	4.50
Indianapolis, del.	8.32
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens Connell., basis	5.50
Buffalo, ovens	8.00 to 8.50
Detroit, ovens	8.00
Philadelphia, del.	8.75

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	9.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% man.	9.50 to 10.00
North African low phos.	8.00 to 9.00
Swedish basic, 65%	8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.50
Newfoundland fdy., 55%	8.00
Tungsten, spot and future short ton unit, duty paid	$11.00
Chrome ore, 48% gross ton c.i.f.	$18.00 to 19.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	24 cents
South African, 52%	23 to 24 cents
South African, 49-51%	22 to 23 cents
South African, 44-47%	21.00 to 21.50
Indian, 48-50% (nom.)	24 cents
Brazilian, 46-48% (nom.)	20 to 21 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$38.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	38.00
Joliet, Ill., East Chicago, Ind.	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$61.50

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$27.00
Pittsburgh, bessemer	27.00
Youngstown	27.00
Cleveland	27.00
Philadelphia	32.75
Chicago	28.00
Forging, Chicago	34.00 to 35.00
Forging, Pittsburgh	33.00 to 34.00
Forging, Philadelphia	38.75 to 39.75

SHEET BARS

Pittsburgh	26.00
Youngstown	25.00 to 26.00
Cleveland	25.00 to 26.00
Chicago	26.00 to 27.00

SLABS

Pittsburgh	27.00
Youngstown	27.00
Cleveland	27.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	36.00 to 38.00

SKELP

All grades, Pittsburgh	1.50c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$75.00
*Ferromanganese, del. Pittsburgh	80.24
Spiegeleisen, 19-20%, domestic fur. spot†	27.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(Spot prices, $5 a ton higher.)	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.10 to 1.20
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis, (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50
Ferromolybdenum, stand. 50-60 per cent. per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molyte, lb. cont.	.80

†Carloads. Differentials apply to quant.
*To users of carloads to 1000 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

Washed gravel, domes., net ton, del. Pitts. equiv.	$20.31
Washed gravel, import duty paid tide. gross ton	19.50

Pig Iron

Four Stacks Blown in—Market Is Quieter, but Shipments Are Well Sustained—Prices Steady

PIG IRON PRICES, PAGE 50

Pittsburgh — Pig iron sales and shipments are practically unchanged from the quiet activity of the past several weeks. Inquiry and orders are limited to small lots, with no buying for future requirements. Prices are receiving only a slight test but are unchanged from recent levels of $16, Pittsburgh, for No. 2 foundry, malleable and bessemer. Basic is nominal at $15.

Boston—Sales in this district in the past week amounted to about 1000 tons. Prices are unsettled by offerings of imported iron, reported at $17.50, delivered. Several hundred tons of Indian iron, enroute, is understood to have been sold, and $17, dock, is considered the market on recent business. Buffalo iron has been sold at $14.50, base, furnace. Shipments from the local furnace are slightly heavier, at about $17, furnace.

New York—The market is dull, with Buffalo foundry and eastern Pennsylvania iron holding at $14.50 to $15, furnace. Practically all buying is for car lots for immediate shipment. Most sellers expect an improvement within the next 30 days.

Philadelphia—A light volume of pig iron sales includes 600 to 700 tons of low phosphorus for the Lorain Steel Co., Johnstown, Pa. The melt has improved slightly. Eastern Pennsylvania foundry iron remains $14.50 to $15, base, furnace.

Buffalo—Demand for pig iron has improved, especially for small lots. To compete at Philadelphia less than $11, Buffalo, would have to be quoted, if shipped all rail, while sellers are holding for $14.50 to $15. They are losing considerable business to imported iron in the East. For local delivery the price remains $16, base, furnace.

Youngstown, O.—The Shenango Furnace Co. at Sharpsville, Pa., and the Youngstown Sheet & Tube Co. at Hubbard, O., resumed blast on one stack each last week to supply malleable and bessemer iron to adjoining ingot-mold foundries. The market shows little change. Shipments continue restricted to small lots. Prices hold at $15.75 to $16 for standard bessemer; $15.50 to $16 for No. 2 foundry and malleable; $15, nominal, for basic; and $15.50 for No. 3 foundry and gray forge.

Carnegie Steel Co. has increased the number of active stacks at its Ohio woks from one to two. Republic Steel Corp. is preparing to relights its blast furnace at the Central Alloy plant, Massillon, O., in March. This stack has been idle for about a year and a half.

Cleveland—Both inquiries and sales show further shrinkage, furnace interests here in the past week having booked approximately 4000 tons, the lowest of any week this year. Shipments are 10 to 15 per cent ahead of the February rate. Demand from automotive foundries has flattened out. The aggregate of small inquiries does not exceed 2000 tons. Furnaces frequently are dipping below $15, base, for shipment to outside districts; for local delivery the market continues $16, furnace.

Cincinnati — Although sales are limited to carload lots, the melt is reported improved. Several important consumers covered last month for first quarter and first half. Shipments are better, and those buying only for immediate use are in the market more frequently. Southern iron is steady at $10, base, Birmingham.

Chicago—Merchant sales west of here in Illinois have been made at prices figuring to $15 and $15.50, base, Chicago. Prices are off in southern Illinois. The nominal quotation for base grades in the Chicago district is $16.50, while silicon extras continue to be waived. An Illinois melter has an inquiry out for 1000 tons of malleable and 500 tons of low phosphorus iron. A tractor plant has ordered 100 tons of silvery. A few carload sales of southern iron have been made at $10, base, Alabama furnace.

St. Louis—Inquiries have developed in good volume, some for second quarter, as a result of which the tone of the market has improved. Sales continue to gain moderately, and shipments are holding up fairly well. Prices are unchanged.

Birmingham, Ala.—The Woodward Iron Co. has blown in its No. 2 stack, seven furnaces now operating in this district. The Gulf States Steel Co. still is buying basic from the Republic Steel Corp. The usual price for local delivery now is $11, base, furnace.

Toronto, Ont.—Merchant pig iron sales are holding around 500 tons a week, melters ordering only single carloads. Pipe foundries are the principal consumers. Production is unchanged, with two furnaces operating.

Ferroalloy Markets Quiet; Prices Steady

Ferroalloy Prices, Page 50

New York—Ferromanganese specifications are steady, with the market unchanged at $75, duty paid, on lots up to 1000 tons. Domestic spiegeleisen, 19 to 21 per cent, is $27, furnace. Demand reflects the 25 to 30 per cent steelmaking operations.

Pittsburgh—Ferroalloy shipments and specifications continue light. Ferromanganese and spiegeleisen are moving at about their January rates, while demand for other ferroalloys generally lacks improvement. Prices are steady, with ferromanganese $75 and spiegeleisen $27. Lower prices apply on large lots.

Chicago — February ferroalloys shipments to replenish low stocks have been the best in six months. Prices are steady. The spot market for spiegeleisen is decidedly quiet.

Bolt, Nut Buying Shows No Gain and Prices Weaken

Bolts, Nuts, Rivets Prices, Page 43

Pittsburgh — Specifications for bolts, nuts and rivets are light, with practically no change in the rate of orders for 30 days. Prices are unchanged, the market usually being 73, 10 and 10 off for bolts and nuts and 2.25c, Pittsburgh, for large rivets.

New York—Bolt and nut manufacturers expect an early increase in demand from the railroads, normally the largest consuming group. A fair tonnage of rivets is required for a 1000-ton tunnel lining, New York city aqueduct. Rivets are 2.25c, Pittsburgh; bolts and nuts are 73, 10, 10 and 5 off.

Cleveland—Bolt and nut makers continue to receive fair tonnage although individual purchases still are not large. Further impetus to this trade is expected when the automotive industry resumes. Quotations appear unchanged.

Chicago—Specifications for bolts, nuts and rivets have shown a downward trend since the first week of February. Additional 5 per cent discounts are added to the 70, 10 and 10 price for bolts and nuts, but rivet prices are steady. Farm implement specifications have tapered, and automotive orders are spotty.

Scrap + Baling = $$$

WE BUILD

BALING PRESSES

HYDRAULIC PRESSURE PUMPS

HYDRAULIC STRAIGHTENERS

SPECIAL HYDRAULIC PRESSES

ACCUMULATORS

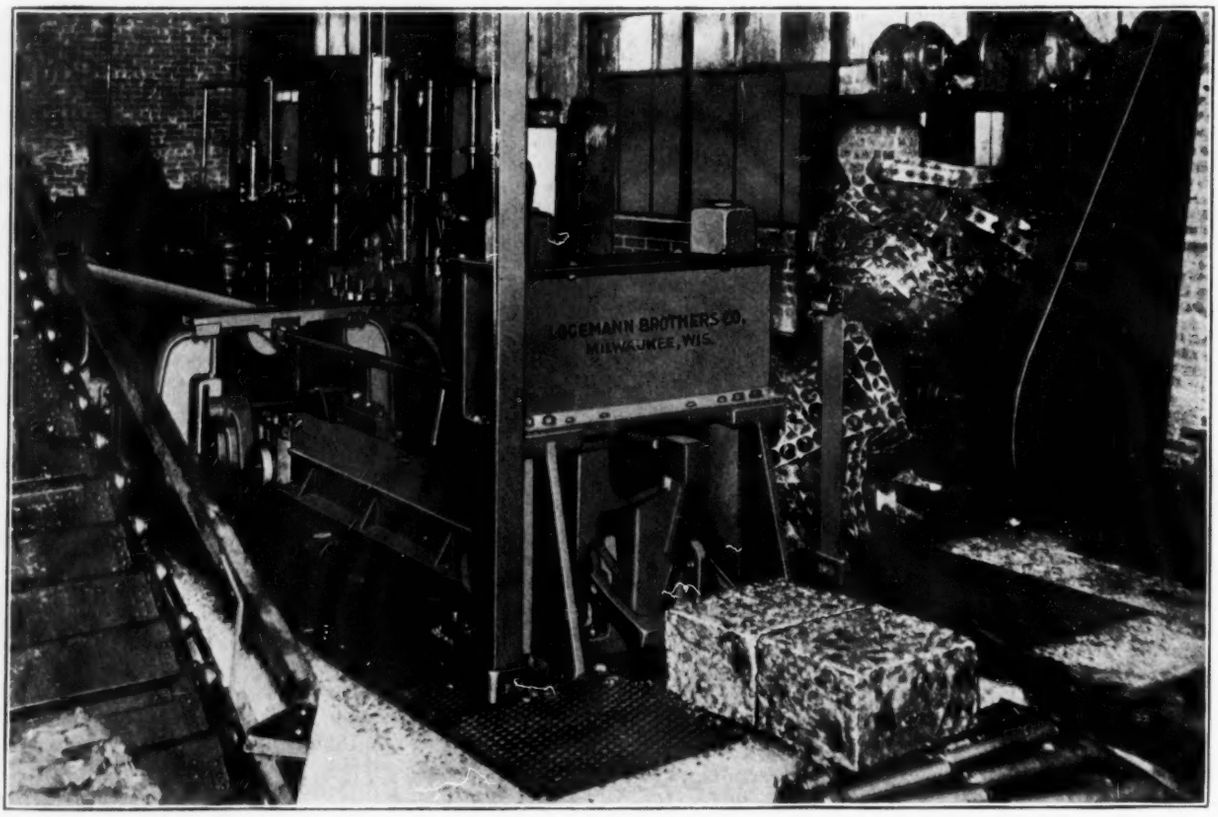
Write Us Your Problems

Hydraulically-compressed scrap commands at all times the best price - - can be more economically handled - - can be readily held for favorable markets.

Baling practically eliminates corrosion - - saves much heat in remelting - - permits easy loading of scrap cars to capacity.

The installation below is in a plant making automotive electrical equipment. Scrap comes to the baling room over the horizontal conveyor at the right, is caught by the hopper, while press is finishing a bundle, then automatically charged into press. Press cover shoves the finished bundles to the rollers carrying them to the inclined apron - conveyor at the left, this discharges directly into gondola - car outside.

Our Engineering Department, with years of experience on installations of all kinds, is at the service of interested scrap - producers. Write us.



LOGEMANN BROTHERS COMPANY

3126 W. BURLEIGH STREET — MILWAUKEE, WISCONSIN

BRANCH OFFICES IN ALL PRINCIPAL CITIES

Scrap

Light Buying Rules and Prices Make Slight Change—Supply Is Large Compared with Needs

Chicago—Efforts to obtain higher prices for heavy melting steel and other steelmaking grades have been fruitless, and the Gary melter has just purchased 5000 tons of melting steel at $7.25, the top of the existing market. Sharp restrictions again have been imposed on shipments of steelmaking scrap. The leading independent has cut shipments in half. More short selling has developed as a result of the less buoyant tone in finished steel and the recent decline in steelworks operations in the Chicago district. Dealers have difficulty in obtaining certain grades, and scrap preparation yards are almost entirely down. Cast borings continue fairly active. While sales of factory grade hydraulic compressed sheets were made recently at $6.50, a sale has just been

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	7.00 to 7.50
Boston, dealers	4.00 to 4.50
Buffalo, No. 1	8.00
Buffalo, No. 2	6.25 to 6.50
Chicago	6.75 to 7.25
Cinci., deal.	6.75 to 7.25
Cleve., No. 1	7.25 to 7.75
Cleve., No. 2	7.00 to 7.50
Det., No. 1 deal.	5.75 to 6.25
Det., No. 2 deal.	4.00 to 4.50
E. Pa. del. mill	7.00 to 7.75
N. Y. deal. R. R.	4.50 to 5.50
N. Y. deal. No. 2	3.50 to 4.00
N. Y. deal. yd.	3.50 to 4.00
Pitts. No. 1	10.00 to 10.50
St. L. No. 1 sel.	7.00 to 7.50
Federal, Ill.	6.50 to 7.00
Granite City, Ill.	6.00 to 6.50
Valleys, No. 1	9.25 to 9.75

COMPRESSED SHEETS

Buffalo, dealers	6.25 to 6.50
Chi. (Factory)	5.25 to 5.75
Cleveland	7.00 to 7.25
Detroit, dealers	5.75 to 6.25
E. Pa. new mat.	6.50 to 7.50
Pittsburgh	9.75 to 10.00
Valleys	8.75 to 9.25

BUNDLED SHEETS

Buffalo	5.25 to 5.50
Cinci., deal.	6.00 to 6.50
Cleveland	6.00 to 6.50
Eastern Pa.	5.50 to 6.00
Pittsburgh	8.50 to 9.00
St. Louis	3.50 to 4.00

SHEET CLIPPINGS LOOSE

Chicago	3.50 to 4.00
Cincinnati	3.50 to 4.00
Detroit, dealers	3.00 to 3.75
St. Louis	3.50 to 4.00

STEEL RAILS SHORT

Birmingham	10.00 to 11.00
Boston, dealers	4.25 to 4.75
Buffalo	10.00 to 11.00
Chicago (3 ft.)	9.00 to 9.50
Chicago (2 ft.)	9.50 to 10.00
Cinci., deal.	10.50 to 11.00
Detroit, deal.	10.50 to 11.00
Pitts. (open-hearth, 3 ft. and less)	12.00 to 12.50
St. Louis	11.00 to 11.50

STOVE PLATE

Birmingham	6.50 to 7.00
Boston, con.	4.50 to 5.00
Buffalo	8.25 to 8.75
Chicago, net	5.75 to 6.25
Cinci., deal. net	4.50 to 5.00
Det., net deal.	3.00 to 3.50
Eastern Pa.	7.00
N. Y., deal. mill	4.50 to 5.00
St. Louis	6.50 to 7.00

COUPLERS, SPRINGS

Buffalo	9.75 to 10.25
Chicago	8.50 to 9.00
Eastern Pa.	8.50 to 9.50
Pittsburgh	11.00 to 11.50
St. Louis	8.00 to 8.50

ANGLE BARS—STEEL

Chicago	7.75 to 8.25
St. Louis	7.00 to 7.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	11.00 to 11.50
Cleveland bil. and bloom crops	14.00 to 14.50
Eastern Pa.	12.00
Pittsburgh billet bloom crops	13.00 to 13.50
Pitts., sheet bar crops	13.00 to 13.50

FROGS, SWITCHES

Chicago	6.75 to 7.25
St. Louis	7.50 to 8.00

SHOVELING STEEL

Chicago	6.75 to 7.25
Cleveland	6.25 to 6.50
St. Louis	6.50 to 7.00

RAILROAD WROUGHT

Birmingham	7.00 to 7.50
Boston, dealers	7.00 to 7.50
Buffalo, No. 1	6.25 to 6.50
Buffalo, No. 2	8.00 to 8.25
Chicago, No. 1	6.75 to 7.00
Chicago, No. 2	6.75 to 7.25
Cinci., No. 2	6.50 to 7.00
Eastern Pa.	9.00
N. Y., No. 1, deal.	6.00 to 6.50
Pitts., No. 2	10.00 to 10.50
St. Louis, No. 1	4.50 to 5.00
St. Louis, No. 2	6.50 to 7.00

SPECIFICATION PIPE

Boston	4.00 to 4.25
Eastern Pa.	8.50 to 9.50
N. Y., deal.	5.00 to 5.50

BUSHELING

Buffalo, No. 1	6.25 to 6.50
Chicago, No. 1	5.25 to 5.75
Cinn., No. 1 dl.	4.75 to 5.25
Cinn., No. 2	3.00 to 3.50
Cleve., No. 2	4.25 to 4.50
Det., No. 1 new deal.	4.50 to 5.00
St. L., No. 1	5.00 to 6.50
Val. new No. 1	8.50 to 9.00

MACHINE TURNINGS

Birmingham	3.50 to 4.00
Boston, dealers	1.05 to 1.55
Buffalo	4.75 to 5.25
Chicago	4.25 to 4.75
Cinn., deal.	3.25 to 3.75
Cleveland	4.00 to 4.50
Detroit	3.25 to 3.75
Eastern Pa.	4.00 to 4.50
N. Y., deal.	1.35 to 1.50
Pittsburgh	7.50 to 8.00
St. Louis	2.50 to 3.00
Valleys	6.00 to 6.25

BORINGS AND TURNINGS
For Blast Furnace Use

Boston, dealers	1.25 to 1.50
Buffalo	6.00 to 6.25
Cinn., deal.	3.25 to 3.75
Cleveland	6.00 to 6.25
Detroit, deal.	4.00 to 4.50
Eastern Pa.	3.00 to 3.50
N. Y., deal.	1.35 to 1.50
Pittsburgh	6.50 to 7.00

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.50 to 4.00
Boston, chem.	5.50 to 6.50
Boston, deal.	1.05 to 1.55
Buffalo	5.75 to 6.25
Chicago	4.25 to 4.75
Cinn., deal.	3.25 to 3.75
Cleveland	6.00 to 6.25
Detroit, deal.	4.00 to 4.50
Eastern Pa.	3.00 to 3.50
E. Pa., chem.	10.00 to 11.00
N. Y., deal.	1.50 to 2.00
Pittsburgh	6.50 to 7.00
St. Louis	5.00 to 5.50

PIPE AND FLUES

Cinn., deal.	6.00 to 6.50

RAILROAD GRATE BARS

Buffalo	5.25 to 5.75
Chicago, net	6.25 to 6.75
Cincinnati	4.75 to 5.25
Eastern Pa.	7.00
N. Y., deal.	5.00 to 5.50
St. Louis	5.75 to 6.25

FORGE FLASHINGS

Boston, deal.	5.00 to 5.25
Buffalo	6.25 to 6.50
Cleve. ov. 10 in.	7.00 to 7.50
Detroit	5.00 to 5.50

FORGE SCRAP

Boston, deal.	1.50 to 2.00
Chicago	9.50 to 10.00
Eastern Pa., del.	6.75

ARCH BARS, TRANSOMS

Chicago, net	7.85 to 8.40
St. Louis	6.50 to 7.00

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	6.75 to 7.25
Chi., steelworks	5.75 to 6.25
Cleveland	6.75 to 7.00
Eastern Pa. del.	7.00 to 8.00
Pittsburgh, O. H.	8.75 to 9.25
St. Louis	5.00 to 5.50

STEEL CAR AXLES

Birmingham	11.50 to 12.00
Boston, ship. pt.	11.00 to 11.50
Buffalo	12.00 to 12.50
Chicago	11.75 to 12.30
Eastern Pa.	14.50 to 15.00
St. Louis	11.50 to 12.00

SHAFTING

Bos., ship. pt.	10.00 to 10.50
Chicago	7.85 to 8.40
N. Y., deal.	9.00 to 9.50
St. Louis	8.50 to 9.00
E. Penna.	13.00 to 14.00

CAR WHEELS

Birming. iron	8.50 to 9.00
Boston, iron	11.00 to 12.00
Buffalo, iron	9.25 to 9.75
Buffalo, steel	9.75 to 10.25
Chicago, iron	7.00 to 7.50
Chi., rolled steel	8.50 to 9.00
Cincinnati, iron	9.00 to 9.50
E. Pa. steel	8.50 to 9.00
E. Pa. iron	10.00 to 11.00
Pitts. iron	10.00 to 10.50
Pitts., steel	11.00 to 11.50
St. Louis, iron	7.00 to 7.50
St. Louis, steel	6.50 to 7.00

NO. 1 CAST SCRAP

Birmingham	8.00 to 9.00
Buffalo (Mach.)	8.50 to 9.00
Boston, textile	7.00 to 8.50
Chicago, mach.	8.90 to 9.50
Chi., railroad	7.55 to 8.10
Chicago, agri.	7.00 to 7.55
Cinn., mach. cup., gross	10.00 to 10.50
Cleve. cupola	10.00 to 10.50
Det., net deal.	8.00 to 8.50
E. Pa. cupola	10.00 to 11.00
N. Y. cup. deal.	7.00 to 7.50
N. Y., del. local foundries	11.00
Pitts., cupola	9.50 to 10.00
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma.	7.00 to 7.50
St. L., No. 1	6.50 to 7.00

HEAVY CAST

Boston	6.00 to 6.50
Bost. mach. cast	8.00 to 9.00
Buffalo, break	5.50 to 6.00
Cleve., break	6.00 to 6.50
Detroit, auto, net deal.	10.00 to 10.50
Det., break., dl.	4.75 to 5.25
Eastern Pa.	9.00
N. Y. break, dl.	5.75 to 6.00
N. Y. No. 1 dl.	7.00 to 7.50
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston R. R.	8.50 to 9.00
Buffalo	9.50 to 10.00
Chicago, agri.	6.50 to 7.00
Chicago, R. R.	7.00 to 7.50
Cinci., R. R. del.	8.75 to 9.25
Cinci., agri. del.	8.50 to 9.00
Cleveland, rail	10.00 to 10.50
Det. auto deal.	9.00 to 9.50
St. Louis, rail	5.50 to 6.00

RAILS FOR ROLLING
5 feet and over

Birmingham	9.50 to 11.25
Boston, deal.	6.00 to 7.00
Buffalo	8.50 to 9.00
Chicago	10.00 to 10.50
Eastern Pa.	10.00 to 10.50
New York	6.25 to 6.75
St. Louis	9.00 to 9.50

LOCOMOTIVE TIRES

Chicago, cut	8.00 to 8.50
St. L., No. 1	8.00 to 8.50

LOW PHOS. PUNCHINGS

Chicago	9.50 to 10.00
Buffalo	10.00 to 11.00
Eastern Pa.	11.00
Pittsburgh	11.00 to 11.50

closed at $5.75, the top of the spread.

Boston—Scrap prices are easy on several grades, with shipments light. Cast for outside shipments is weak, dealers offering 25 cents lower for textile, heavy breakable and No. 2 cast in some instances. Offers of $4 for No. 1 steel for Pennsylvania make such business less desirable than that for Central Massachusetts at $6.50, delivered.

New York—Scrap shipments are light, several mills continuing to hold up shipments. Foundries in New Jersey are also taking less scrap. Buying for barge storage has lessened. Prices are generally unchanged.

Philadelphia — For the second consecutive week prices of steel and iron scrap are nominally unchanged. Trading is practically at a standstill with a continued ban on shipments to several leading consuming points.

Buffalo—Principal steelworks are taking deliveries of scrap, for the first time since Jan. 1 in two instances. One works is receiving only blast furnace scrap while others also are taking open-hearth grades.

Pittsburgh—The scrap market is quieter by the lack of interest on the part of leading consumers. Recent buying has been confined to small lots of miscellaneous descriptions with prices generally unchanged. Heavy melting steel continues $10 to $10.50 with blast furnace grades $6.50 to $7. Cast material is slightly easier.

Detroit — Though reflecting no changes in iron and steel scrap prices last week, the market has shown stronger tendencies. Test is expected this week on whether strength will be maintained.

Cleveland—Except for accumulation of blast furnace scrap by one local interest, because of low price, there is no activity in steel and iron scrap. Prices are unchanged. Valley consumers are taking small lots of heavy melting steel.

Cincinnati—The iron and steel scrap market is less active than in the opening weeks of the year, with mills lacking interest in purchasing. Releases from industrial sources are light and one railroad continues to withhold scrap. Heavy melting steel remains at $6.50 to $7.

St. Louis—Demand for iron and steel scrap continues quiet, with prices quotably unchanged. Sales are mainly in small lots, the only exception being a round lot of steel, believed to be about 2000 tons, taken by an east side mill. This material was acquired at figures which represent the low on the present movement.

Birmingham, Ala.—All purchasing is in as small quantities as possible. Melters of heavy melting steel are carrying some stock on yards and are buying against early requirements. All quotations are low and some melters are virtually making their own prices.

Toronto, Ont.—Demand for iron and steel scrap is spotty. Consumers buy only for spot delivery. Machinery cast is the most active, followed by wrought iron and stove plate. Other lines, particularly steel, are dull. Prices are unchanged.

Canadian Scrap

Dealers' Buying Prices

Per Gross Ton

MONTREAL

Iron axles	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

Wire Buying Steady at Low Level: Prices Hold

Wire Prices, Page 43

Chicago—Gains in specifications for merchant wire products are not consistent. While orders are slightly under January, they have not fallen back to the November-December rate. Plain wire at 2.25c, Chicago or western mills, has been tested as to price, while orders for nails have not been in sufficient quantity to definitely outline the market. The nominal quotation to jobbers is $1.95, Pittsburgh-Cleveland. Electrical wire sales are fair. Lower Mississippi valley floods have held back some merchant business.

Worcester, Mass. — Production shows a slight increase, attributable mainly to increased automobile production. Plain bright wire to dealers is 2.30c, base Worcester.

Pittsburgh—Jobbers of wire products are placing occasional orders at full price schedule, with little change in volume. Specifications for manufacturers' wire are slightly heavier but still in small volume. Wire rods continue slow. Prices remain $1.95 to jobbers for wire nails.

Coke

Inquiries for Beehive Picking Up—30,000 Tons of By-Product Foundry Fuel Sold at Cincinnati

COKE PRICES, PAGE 50

Pittsburgh—Inquiries for beehive coke are slightly more numerous, but orders have not improved. Foundry requirements are light and furnace coke is moving in only small lots. Prices on foundry coke continue $3.25 to $4.50. Furnace coke production is at a low level, with the market slightly easy at $2.25. Heating coke activity is moderately improved over the January rate.

New York—Little activity is noted in the metallurgical coke market. Prices of beehive furnace coke are unchanged, although common grades of beehive foundry appear a little stronger at around $3.25, Connellsville. Premium brands are $4.50, Latrobe, Pa. By-product foundry coke is $8.79 to $9.16, delivered, Newark, N. J.; $10.50, New England; and $8.75, Philadelphia.

Boston—By-product foundry coke shipments are light, many foundries operating under 40 per cent. Prices are unchanged at $10.50, delivered.

Cincinnati — Contract for 30,000 tons of by-product coke was signed during the past week by an unidentified buyer. Shipments to foundries show moderate improvement. Total sales of domestic grades will be decidedly lower than a year ago.

Chicago — February by-product foundry coke shipments are a shade over January. Requirements for foundry work have been slightly heavier. Oven quotations are $7.50, and the Chicago delivered price is 75 cents a ton higher, plus 6 cents freight surcharge.

St. Louis—Indications point strongly to heavier melting operations in the next few weeks, though coke sales and shipments have not increased appreciably. Prices are steady.

Birmingham, Ala.—Coke production continues at about 50 per cent of normal. By-product foundry coke is unchanged at $4.50.

Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 6.75c, Conn., for copper

Sheets	
Yellow brass (high)	12.87½
Copper, hot rolled	15.87½
Lead sheets, to jobbers	6.75
Zinc sheet (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	16.12½
Seamless copper	15.37½
Rods	
Yellow brass (high, full turnings)	10.62½
Naval brass	11.75
Anodes	
Copper untrimmed	12.75
Wire	
Yellow brass (high)	12.87½

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	4.00 to 4.25
Chicago	2.75 to 3.00
Cleveland	3.50 to 3.75
St. Louis	**3.50**
Heavy Yellow Brass	
New York	2.50 to 2.75
Heavy Copper and Wire	
New York	5.00 to 5.25
Boston	4.50 to 4.75
Chicago	3.00 to 3.25
Cleveland	3.50 to 4.00
St. Louis	**3.75**
Composition Brass Borings	
New York	3.75 to 4.00
Yellow Brass Tubing	
Cleveland	2.25 to 2.50
Light Copper	
New York	4.00 to 4.25
Chicago	2.50 to 2.75
Cleveland	3.00 to 3.50
St. Louis	**3.50**
Light Brass	
Boston	1.65 to 1.85
Chicago	1.50 to 1.75
Cleveland	1.50 to 1.75
St. Louis	**2.00**
Lead	
St. Louis	2.50
Zinc	
New York	**1.00 to 1.25**
Cleveland	**1.00 to 1.25**
St. Louis	1.25
Aluminum	
Clippings, new, soft, Cleve.	**11.00 to 11.50**
Clippings, hard, Cleveland	**7.50 to 8.50**
Borings, Cleveland	2.75 to 3.25
Mixed cast, Cleveland	4.00 to 4.25
Mixed cast, Boston	3.25 to 3.50
Mixed cast, St. Louis	**3.50 to 4.00**

Secondary Metals

Remelt, aluminum No. 12	8.50 to 9.00
Brass ingots, 85-5-5-5	6.37½

Metals

Sentiment Is Improved with Copper, Tin and Zinc Quoted Higher—Lead Firm

New York—Sentiment improved in nonferrous metals last week coincident with strength in commodities and securities due to further efforts of the government to combat the depression. Copper firmed up and most other metals showed a steady tone.

Copper—The custom smelter price of electrolytic copper advanced ¼-cent last week to 6.25c, Connecticut. Some smelters asked 6.50c but sufficient metal was available at the lower to meet current light domestic demand. Mine producers generally remained out of the market or held to the nominal quotation of 6.75c. It was believed, however, that some mine interests would accept bids of 6.50c. Export business was heavier with sales of 3550 tons Monday and the largest day's business in months. The export quotation was advanced from an extreme low of 6.12½c to 6.62½c, c.i.f. European ports. Domestic copper and brass product quotations continued on the basis of 6.75c for copper.

Lead—Demand was well above the recent average early last week but tapered off somewhat toward the close of the period. Prices retained recent firmness despite announcement of further increases in domestic refined metal stocks. Substantial tonnages have been booked as far ahead as March.

Zinc — Sales continued light but prices were slightly higher than in the preceding week. Some sellers asked prices several points above the general market level. Firmer ore prices were an important factor in the strength displayed.

Tin—The general level of prices was higher last week although still below usual import costs, which has been the case for some time. Sales were fair on some days. Total volume for the week, however, was considered small.

Antimony—Trading was light with most sellers asking prices above levels at which business was actually done. February imports from China are expected to fall well under recent monthly volume.

Aluminum—Prices hold unchanged with buying generally light.

Coke By-Products Volume Light; Prices Are Firm

New York—Distillate prices are unchanged and firm, but volume is light, barely covering current output which still is curtailed. Toluol demand has slumped slightly.

Chain stores continue to take a good part of contract shipments of naphthalene. Spot volume is light but at unchanged prices. Phenol sales and prices are unchanged, while sulphate of ammonia shows some improvement, with prices easy.

Coke By-Products

	Spot
Per Gallon, Producers' Plants, Tank Lots	
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants in	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.10 to $1.20

Quicksilver Firmer

New York—Firmer prices are appearing in the quicksilver market. The current range prevailing appears to be $66 to $68 a virgin flask of 75 pounds, mainly small lots for prompt delivery. Some asking prices range as high as $69 to $70 on small lots. Several substantial orders have been placed by consumers.

Prices of the Week, Cents a Pound

	Copper: Electro delivered	Copper: Lake delivered	Copper: Casting refinery	Straits Tin: New York Spot	Straits Tin: New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
February 13	6.25	6.37½	6.00	22.00	22.50	3.75	3.55	2.80	22.90	6.37½	35.00
February 15	6.25	6.37½	6.00	22.25	22.75	3.75	3.55	2.82½	22.90	6.37½	35.00
February 16	6.25	6.50	6.00	22.15	22.65	3.75	3.55	2.82½	22.90	6.37½	35.00
February 17	6.25	6.50	6.00	22.25	22.75	3.75	3.55	2.82½	22.90	6.37½	35.00
February 18	6.25	6.50	6.00	22.20	22.70	3.75	3.55	2.82½	22.90	6.37½	35.00
February 19	6.25	6.50	6.00	22.25	22.75	3.75	3.55	2.82½	22.90	6.37½	35.00

Personals

(*Concluded from Page* 16)

ed chief engineer for the Pangborn Corp., Hagerstown, Md. A native of Switzerland, he has specialized in blast cleaning and dust collecting problems for the past 20 years.

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Arthur G. McKee, R. E. Baker, H. E. Widdell, L. B. Weidlein and J. D. Williams were elected directors of the Arthur G. McKee Co., Cleveland, at its recent annual meeting.

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W. R. Basset, R. D. Campbell, J. Hauvette Michelin, William B. Read and Frank E. Smith have been re-elected directors of Budd Wheel Co., Philadelphia and Detroit, for three-year terms.

Obituaries

JOHN O. HORNIUG, vice president and treasurer of the Mesta Machine Co., Pittsburgh, died Feb. 13 at Rochester, Minn. A resident of the Pittsburgh district practically all his life, Mr. Morning was also a director of the Mesta Machine Co., with which he had been affiliated for 40 years. He was a director of the Monongahela Trust Co., Homestead, Pa.

□ □ □

George J. Cooke, 61, inventor and designer of refrigerating machinery, died Feb. 11 at Chicago.

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Frank S. Jackson, 37, sales engineer at Bethlehem, Pa., for Bethlehem Steel Co., died Feb. 12. He had been with the Bethlehem company since 1914.

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Victor W. Dentz, 44, sales manager, Simplicity Mfg. Co., Port Washington, Wis., special automotive machine tools, died Feb. 11 at Milwaukee.

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Henry Norton, 75, one of the founders of the Burgess-Norton Mfg. Co., Geneva, Ill., screw machine products, bearings and automotive parts, died Feb. 16 at Geneva.

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Samuel M. Kier, formerly president of the Kier Fire Brick Co., Pittsburgh, now a part of the General Refractories Co., Philadelphia, died Feb. 17.

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Raymond Newcomb, 34, vice president, Kewanee Boiler Co., New York, and the Fitzgibbons Boiler Co., Oswego, N. Y., died Feb. 16 of injuries suffered in an automobile accident near Selma, Ala. With Mr. Newcomb at the time of the accident was E. N. Cunningham, Birmingham, Ala., representative of the two companies, who was also killed.

□ □ □

William L. Patterson, director of the technical bureau of Bausch & Lomb Optical Co., Rochester, N. Y., died at Rochester Feb. 5. He had been affiliated with the company since 1894 and was a member of the A. S. S. T.

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Frank A. Rehm, 58, capitalist, died in Chicago Feb. 16. He had been interested in a number of Chicago business and industrial enterprises, and was president of the Winslow Boiler & Engineering Co., Chicago, for a number of years, retiring in 1929.

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Ralph W. E. Hayes, 59, formerly president of the Hayes Pump & Planter Co., Galva, Ill., died at Chicago Feb. 12. Mr. Hayes retired three years ago at the time of his election as president of the National Association of Farm Equipment Manufacturers.

□ □ □

Joseph H. Turivas, 54, vice president and treasurer of Briggs & Turivas Inc., Blue Island, Ill., iron and steel scrap, steel rails and car equipment, died at Chicago Feb. 13. Mr. Turivas with Carl R. Briggs, now president of the company, organized the company more than 20 years ago.

□ □ □

Francis F. Light, 34, for the past few years circulation manager of STEEL, died at his home in Cleveland, Feb. 19, following a brief illness. Except for the two years beginning June, 1917, when he saw service overseas with the American Expeditionary Force, Mr. Light was continuously associated with the Penton Publishing Co., publisher of STEEL, since June, 1915. His widow and two children survive him.

Here and There In Industry

AMERICAN IRON AND STEEL INSTITUTE will move its headquarters from 75 West street to the Empire State building, Fifth avenue and Thirty-fourth street, New York. No definite date for moving has been set.

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Carriage & Body Co. Ltd., Brantford, Ont., will start soon to manufacture hydraulic hoists and dump bodies made by the Anthony Co. Inc., Streator, Ill., for which the former has been Canadian distributor.

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Wagner Electric Mfg. Co. Ltd., recently formed as a subsidiary of the Sangamo Co. Ltd., Toronto, Ont., has acquired the manufacturing and sales rights of the Wagner Electric Corp., St. Louis, and will start shortly manufacturing fractional horsepower motors.

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Canada Iron Foundries, Three Rivers, Que., has added valves and hydrants for water pipes to its products, to keep its plant in operation.

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Northern Corrugating Co., Green Bay, Wis., has changed its name to Norcor Mfg. Co. It manufactures sheet steel stampings and other steel products.

□ □ □

Freyn Engineering Co., Chicago, has received an order from the Worth Steel Co., Claymont, Del., for two Freyn design electric roll heaters. This installation makes a total of 326 roll heaters in service.

□ □ □

Brown Tool Co., 10465 Carnegie avenue, Cleveland, agent for the Barber-Colman Co., Rockford, Ill., has taken the distributing agency for the company's door operating equipment and other products of the electrical devices division.

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William H. Ziegler Co., Minneapolis and Duluth, has moved its Duluth office from the Builders Exchange building to 331 West Michigan street. J. G. Lewis will be in charge. The company deals in contractors' and mining equipment.

□ □ □

John C. Virden Co., Cleveland, manufacturer of electric light fixtures, has formed a Canadian branch, John C. Virden Co. Ltd., which has been established at 34 Front street East, Toronto, Ont. John C. Virden is president and J. M. Ehrlich, Toronto, representative for several years, has been placed in charge of operations.

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Norcor Mfg. Co. is the name adopted by the Northern Corrugating Co., Green Bay, Wis., originally established to make corrugated sheet metal building supplies and steel ceilings. In recent years the company has been devoting itself principally to the production of folding steel chairs and tables, bridge sets, and recently a new line of continuous steel seating for auditoriums and folding steel armchairs.

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Modine Mfg. Co., Racine, Wis., heating and air conditioning systems, is receiving substantial contracts for air-conditioning apparatus for railroad passenger coaches, which largely is supplementing the lessened demand for some of its other products, which also include hoisting and air compressing machinery, stationary engines and electric light plants. Except for rush orders, operations are on a 4-day weekly basis, one shift.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	25	7
¾	62	50½	¾	30	13
1—3	64	52½	1—1¼	33	17
			1½—2	37	20

LAP WELD

2	57	45½	2	25	11
2½—6	61	49½	2½—3½	30	15
7—8	58	45½	4—6	32	19
9—10	56	43½	7—8	31	18
11—12	55	42½	9—12	28	13

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+11	+46
¾	60	49½	½	25	9
1—1½	62	51½	¾	30	14
2—3	63	52½	1—2	36	20

LAP WELD

Extra strong, plain ends

2	55	44½	2	31	15
2½—4	59	48½	2½—4	36	22
4½—6	58	47½	4½—6	35	21
7—8	54	41½	7—8	33	19
9—10	47	34½	9—12	23	10
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES
COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$32.00 to 33.00
Four-inch, Birmingham .... 36.00 to 37.00
Four-inch, Chicago ..... 41.40 to 43.40
Six to 24-inch, Chicago..... 38.40 to 40.40
Six-inch and over, N. Y..... 28.00 to 30.00
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.00c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los Ang.	3.40c
New York‡(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	2.50c
San Fran.	2.40c
Seattle	2.50c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.50c
Los Ang. lcl.	2.80c
New York	2.65c-3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.60c
San Fran. lcl.	2.90c
Seattle	2.50c
St Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los Ang.	3.40c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	2.50c
San Fran.	2.40c
Seattle	2.50c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

PLATES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.40c
New York(d)	3.30c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	2.50c
San Fran.	2.40c
Seattle	2.50c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.50c
Buffalo	3.50c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.95c
N. Y.	3.00c
Portland	3.50c
Phila.*† (e)	2.90c
Pitts.**	3.00c to 3.10c
San Fran.	3.65c
Seattle	3.50c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	4.10c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.70c
New York	3.50c-3.65c
Phila.*†(e)	3.40c
Pitts.**	3.40c
Portland	4.00c
San Fran.	4.15c
Seattle	4.00c
St. Louis	3.80c
St. Paul	3.545c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.35c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	4.00c
Houston	4.25c
Los. Ang.	5.10c
New York	4.00c-4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	4.50c
San. Fran.	4.65c
Seattle	4.50c
St. Louis	4.35c
St. Paul	4.23c
Tulsa	5.10c

BANDS

Baltimore	3.25c
Boston	3.75c
Buffalo	3.35c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.75c
Seattle	3.50c
St. Paul	3.75c
Tulsa	3.45c

HOOPS

Baltimore	3.25c
Boston	4.90c-5.40c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	4.90c
St. Paul	3.75c

COLD FIN. STEEL
Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.75c
Chicago	3.10c
Cincinnati	3.50c
Cleveland	3.10c
Detroit	3.40c
Los Ang. (a)	4.50c
New York	3.30c
Philadelphia*	3.30c
Pittsburgh	3.10c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.85c
St. Louis	3.35c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.25c
Chicago (soft) (b)	5.65c
Cincinnati	5.30c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
‡ Domestic bars.
* Plus quan. extras.
** Less than 25 sheets.
*† 50 or more bundles.

Europe

British January Exports and Imports Shrink—French Bar Sales Are Handled by Comptoir

London—(*By Cable*)—Steel and iron markets present little of interest, though shipments of pig iron from Middlesbrough have increased. Hematite exports from the East Coast are fair, especially to Italy. Stocks of pig iron at Midland furnaces are increasing. Canadian consumers have placed some small steel tonnages with British makers. Galvanized sheets are firmer because of better European buying. Tin plate demand and production are improving.

Both exports and imports of steel and iron fell off in January, decline of the latter being most marked. Imports in January were 170,435 tons and in December 266,901 tons. Exports in January were 167,309 tons and in December 175,256 tons.

Domestic trade in Germany is slightly improved. Paris advices state that merchant bar sales now are handled exclusively by the comptoir. Continental export trade generally is dull and competition is keen.

Pacific Coast

Fair Tonnages Placed and More Is Under Consideration

San Francisco—(*By Air Mail*)—Three awards of 100 tons or over were made this week in this territory. Consolidated Steel Corp. booked 750 tons of shapes for the postoffice at Long Beach, Calif. Minneapolis-Moline Power Implement Co., Minneapolis, booked 275 tons for the Grant store at Los Angeles. M. Rosenberg, San Francisco, was awarded 250 tons of 8-inch cast iron pipe for the naval dirigible base at Sunnyvale, Calif.

R. W. Kaltenbach Corp., Bedford, O., is low bidder on two 25-ton floating cranes for Mare Island navy yard and San Diego naval base, requiring about 1000 tons of shapes and plates and 200 tons of machinery.

Bids will be opened shortly on 350 tons of plates for a penstock for Los Angeles. No action has been taken on 1200 tons of plates for a gas holder at Sunnyvale, Calif., or on 850 tons for a welded steel pipe line at Signal Hill, Calif. Subcontracts for 250 tons of shapes for a battery building at the Mare Island navy yard will be placed soon. Awards are pending on 3675 tons of 6 to 12-inch cast iron pipe for Long Beach, Calif., and on 1350 tons of 6 and 8-inch pipe for San Francisco. Beverly Hills, Calif., will open bids March 1 on 241 tons of 6 to 12-inch cast pipe.

Seattle Awards Make Gain

Seattle—Somewhat better demand for steel products is shown by awards totaling 5000 tons, the largest week for several months. Pacific Coast Steel Corp., Seattle, has taken 746 tons of reinforcing bars for approaches for the University bridge, Seattle. Northwest Steel Rolling Mills, Seattle, has booked 150 tons for the Juanita bridge, Seatfle. The government has bought from unnamed interests 105 tons for a power house at Prosser, Wash., and 100 tons for the Owyhee irrigation project in Oregon. The Prosser project also included 52 tons of shapes and gates. An additional 100 tons of reinforcing bars is said to have been placed by the government for the Cle Elum, Wash., dam.

Poole & McGonigle, Portland, Oreg., has booked 2000 tons of structural steel for the federal building at Portland, and 250 tons for three bureau of roads buildings at Vancouver, Wash. Wallace Bridge & Structural Steel Co., Seattle, has taken 1600 tons for approaches to the University bridge, Seattle. Colonial Building Co., Spokane, Wash., has been awarded a contract to build the Ione bridge in Pend d' Oreille county, Washington, requiring 237 tons of shapes and 17 tons of reinforcing bars.

Reorganization of the Intercoastal conference will result in an increase in water rates on steel of more than 50 per cent March 1. The former rate of 20 cents will be increased to 32½ cents for plates, shapes and bars and 35 cents for sheets and nails.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Feb. 18

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports	£ s d	Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	£ s d	L s d
PIG IRON					
Foundry, 2.50-3.00 Silicon	$10.09	2 18 6	$ 9.96 to $10.45	2 1 0 to 2 3 0	
Basic bessemer	9.66	2 16 0*	9.48 to 9.72	1 19 0 to 2 0 0	
Hematite, Phos. .03-.05	11.21	3 5 0	.....	.....	
SEMIFINISHED STEEL					
Billets	$18.54	5 7 6	$11.42 to $11.66	2 7 0 to 2 8 0	
Wire rods, No. 5 gage	29.33	8 10 0	24.30 to 25.52	5 0 0 to 5 5 0	
FINISHED STEEL					
Standard rails	$28.46	8 5 0	$28.55		5 17 6
Merchant bars	1.08c	7 0 0	.58c to .59c	2 13 0 to 2 14 0	
Structural shapes	1.19c	7 15 0	.56c to .57c	2 11 0 to 2 12 0	
Plates, †¼ in. or 5 mm.	1.34c	8 15 0	.68c to .69c	3 2 0 to 3 3 0	
Sheets, black, 24 gage or 0.5 mm.	1.34c	8 15 0	1.46c to 1.49c	6 12 6 to 6 15 0	
Sheets, gal., 24 gage, corr.	1.46c	9 10 0	1.54c	7 0 0	
Bands and strips	1.46c	9 10 0	.77c to .80c	3 10 0 to 3 12 6	
Plain wire, base	1.31c	8 10 0	1.18c	5 7 6	
Galvanized wire, base	1.69c	11 0 0	1.38c to 1.40c	6 5 6 to 6 7 6	
Wire nails, base	1.69c	11 0 0	1.21c	5 10 0	
Tin plate, box 108 lbs.	$ 2.50	0 14 6	$3.20	0 13 2‡	

British ferromanganese $72 to $75 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d	French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5	$10.09	2 18 6	$ 9.48	240	$10.32	370	$17.02	69
Basic bessemer pig iron	9.66	2 16 0*	.....	.....	9.21	330	17.97	75.50
Furnace coke	2.29	0 13 3	5.73	145	4.46	160	5.09	21.40
Billets	18.54	5 7 6	13.04	330	12.00	430	23.68	99.50
Standard rails	1.27c	8 5 0	1.41c	785	1.57c	1,210	1.37c	127
Merchant bars	1.08c	7 0 0	.90c	500	.66c	510	1.24c	115
Structural shapes	1.34c	8 15 0	.99c	550	.65c	500	1.22c	112.50
Plates, †¼-in. or 5 mm.	1.39c	9 0 0	1.17c	650	.97c	595	1.43c	132
Sheets, black, 24 ga. or .05 mm.	1.34c	8 15 0§	1.33c	740‡	.88c	675‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or .0.5 mm.	1.46c	9 10 0	2.43c	1,350	2.20c	1,690	4.00c	370
Plain wire	1.31c	8 10 0	1.75c	970	1.95c	1,500	1.92c	178
Bands and strips	1.46c	9 10 0	.96c	535	.91c	700	1.44c	133

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basis price.
British quotations are for basic open-hearth steel, Continental usually for basic-bessemer steel.

Machinery

THIS week's reports from industrial equipment markets indicate that sentiment—as well as actual business—is somewhat better in the Middle West than it is in the East. In no case, however, have schedules of any size been released. Some are expected to come out of the automotive industry but it generally is felt that they depend upon more definite information on Ford cars and Ford plans, which may be out within a month. Navy buying, which has been an important factor for some time past, is not as active as it was. Exports are down to the vanishing point and these exports, which were important factors in 1931, are sorely missed.

New York — No substantial improvement is reported in the demand for machine tools or other industrial equipment. Inquiry is light and, as is true also of most of the recent orders, it is limited to a few scattered items. Dealers and builders are working hard on likely prospects, but none of these show any inclination toward early closing on pending schedules. This condition undoubtedly will continue until there is definite improvement in general business.

Navy department took bids this week on a few pieces of shop equipment, including a shear for Brooklyn. However, this department now is considerably less active in its buying than it has been for the past several months. There are some machinery builders who continue to be fairly active in completing equipment orders from the automotive industry, but new orders from that source are becoming few and far between. It is noticeable that exports of industrial equipment have diminished almost to the vanishing point.

Worcester, Mass.—Aside from navy department schedules—which in normal times would be minor factors—and some business which is being placed by General Electric Co. among New England machinery builders, the market remains stagnant.

One local builder has sold two drum lathes and a saw in Kansas City. A builder in northern New England reports some business in automatic machinery in the Middle West. Demand for grinders has fallen off and no large prospects are immediately in sight.

Pittsburgh—There has been no change in recent rate of industrial machinery awards and inquiries to break the monotony of the extreme quietness prevailing so far this year. Dealers are receiving occasional orders, a number of which represent equipment pending for many months. Buying usually is limited to individual units and inquiry is slow.

As a result of stagnant machinery market conditions which now have persisted for more than a year, fair demand is expected upon resumption of activity in general business. In the meantime little hope is entertained of any voluntary widespread adoption of modernization programs on the part of production machinery users, until times are better.

Cleveland—Aside from some recent activity in automatic machinery, the equipment market in this district remains stagnant as far as orders are concerned. However, sentiment continues to be good—as was the case last week—and builders, as well as dealers, are working on a number of likely prospects. Hope is expressed generally that it will not be long before some substantial equipment orders will be released by the larger automobile builders.

A number of machine tool builders in this district lately have been engaged in outside contract manufacturing, while others have been developing products other than machine tools on their own account. One of the latter is the National Acme Co., which has developed the Chronolog, an electromagnetic instrument for recording actual performance of all kinds of production machinery. This device is to be demonstrated before Associated Industries of Cleveland on the evening of Feb. 24.

Chicago—Only a few scattered orders for light tools have been closed since the two good sized orders reported a week ago. Expected business from automotive accessory and parts makers has failed to materialize, largely because of delays in the Ford program. In general, western machinery builders have no backlogs of orders, nor do they have any assurance of heavier equipment schedules during the spring and early summer months.

Unusually low prices have prevailed at several recent machine tool auctions. Inquiry for used equipment is fair and occasionally prospective buyers discuss future trade-in possibilities.

The last few months have seen the removal from this district of several light manufacturing concerns. Jewel Electrical Instrument Co., 1650 Walnut street, Chicago, has been purchased by Western Electrical Instrument Corp., Newark, N. J., and manufacturing operations will be transferred to New Jersey.

Hoist Business in January Showed Marked Decrease

New York—Members of Electric Hoist Manufacturers' association report the number of hoists ordered during January decreased 39.552 per cent, as compared with the previous month.

Value of such orders decreased 43.167 per cent, as compared with December, 1931. Shipments are reported to have been 23.646 per cent smaller in January than December.

Announcement is made that the fifteenth annual meeting of Electric Hoist Manufacturers' association will be held Thursday, March 17, at Hotel McAlpin, New York.

Navy Buys Machine Tools

Announcement is made of the following successful bidders on recent navy lists: Kemp Machinery Co., Baltimore, on one universal grinding machine, also spindles and attachments, for San Diego, Calif., at $2907.50; Chambersburg Engineering Co., Chambersburg, Pa., on a drop hammer for Boston, at $5328; Swind Machinery Co., Philadelphia, on a universal milling machine for Hampton Roads, Va., and another milling machine for Munhall, Pa., the cost of both, with attachments, being $3768.

Forecasts 5 Good Years

Chicago—Franklyn Hobbs, economist, Central Republic Bank & Trust Co., in his twenty-eighth annual business forecast foresees 5 years of good business in the period of 1932-36. Among industrial operations, Mr. Hobbs asserts, the iron and steel industry has the best outlook, coupled with the promise of considerable improvement in output and sales of products of nonferrous metals. Barring the unforeseen, the era 1932-36 should fall in volume somewhere between the era of 1886-90 and 1925-1929, according to Mr. Hobbs' forecast.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New York

ALBANY—Thor Mfg. Co. has been incorporated with $50,000 capital and 20,000 shares common stock to manufacture electrical devices, by A. J. Selkirk, Albany, N. Y.

BROOKLYN—Brooklyn Steam Corp. has been incorporated with 1000 shares common stock to operate a steam heating plant, by J. Applebaum, 26 Court street, Brooklyn, N. Y.

NEW YORK—Ment Bros. has been incorporated with 100 shares no par value to operate an iron works, by H. Vogel, 1440 Broadway.

NEW YORK—Belovin Lamp & Fixture Mfg. Corp. has been incorporated with $10,000 capital by J. Mendlowitz, 985 Ogden avenue, Bronx, New York.

NEW YORK—Aptograph Engineering Corp. has been incorporated with 100 shares common stock to manufacture addressing machines, by A. Kopp, 26 Court street, Brooklyn, N. Y.

NEW YORK—Hones Steel Corp. has been incorporated with $5000 capital to manufacture metal products, by R. F. Graecan, 80 South Elliot place, Brooklyn.

New Jersey

CLIFTON—Deubel High Pressure Rotary Pump Corp. has been incorporated with $150,000 capital to manufacture pumps and similar products, by Maurice Slaff, Clifton, N. J.

NEWARK—American Conduit Co. has been incorporated with 2500 shares no par value to manufacture metal conduits, by Degraw, Murray & Keenan, Newark, N. J.

NEWARK—Knight Engineering Corp. has been incorporated with 2500 shares common stock to manufacture exhaust fans, blower systems and similar devices, by Arthur M. Karl, 60 Park place, Newark, N. J.

NEWARK—Thor Electric Clock Corp. has been incorporated with 2500 shares no par value to manufacture tower clocks, time registers and similar devices, by Bernard Freedman, Newark, N. J.

UNION CITY—Save-on-Coal Co. Inc. has been incorporated to manufacture fuel-saving devices, with $20,000 capital, by Louis Stein, Union City, N. J.

UNION CITY—Capstaff Marine Turbine Co. has been incorporated with 100 shares common stock to manufacture engines and turbines, by Platoff, Saperstein & Platoff, Union City, N. J.

Michigan

MARQUETTE—City council will receive bids soon for improvements to the municipal light and water system, to cost about $75,000. Work includes replacing three steam pumps with electrically-operated pumps, new pipe line, power transmission line from power plant to waterworks. Pearse, Greeley & Hansen, 6 North Michigan avenue, Chicago, are consulting engineers.

Indiana

LAFAYETTE—Bids will be received until March 20 by Purdue university for construction of a mechanical engineering building, 60 x 230 feet, three stories. Cost is estimated $200,000. Walter Scholer, 210 Wallace building, is architect.

Illinois

BERWYN — American Hydraulic Transmission Co., 6706 Ogden avenue, has been incorporated with $40,000 preferred and $50,000 common stock to manufacture hydraulic transmissions, by William C. Dunn, Ashland block, Chicago, and associates.

MOLINE—A bond issue has been voted to cover a $350,000 program of waterworks improvement, including a reservoir and purification system at Sylvan park, and new mains. Pearse, Greeley & Hansen, 6 North Michigan avenue, Chicago, are engineers.

MARSEILLES—United States engineer's office, 333 North Michigan avenue, Chicago, will receive bids soon for construction of a dam with eight steel tainter gates, in the Illinois river here. Materials will include 104 tons of reinforcing bars, 11 tons of wire fabric, 978 tons of structural steel, 227 tons steel sheet piling, 42 tons steel castings, 32 tons iron castings and 43 tons forgings.

Missouri

ST. LOUIS—Economy Products Co., W. W. Strickler president, 705 Euclid avenue, has been organized to manufacture metal dikes and fire walls as a substitute for earth dikes around bulk oil plants.

ST. LOUIS—St. Louis Flush Valve Co., Walter Johnson president, 3620 Enright avenue, has been organized to manufacture a flush valve to eliminate use of flush tank. About $45,000 will be spent for equipment to start manufacture.

Wisconsin

GREEN BAY—Brown County Park Commission, Harold Neville county clerk, will build an airplane hangar at the county airport.

MILWAUKEE—T. F. Going Corp. has been formed to manufacture railroad equipment by T. F. Going, 1709 Humboldt avenue, and Fred W. Buesch.

MILWAUKEE—Filer & Stowell Co., 147 East Beecher street, has started construction of a 1-story foundry, 63 x 168 feet, as an addition to its plant.

PORTAGE—Bids will be received by the city council for a sewage disposal plant to cost $60,000, including Imhoff-type settling tank and trickling filters. Pearse, Greeley & Hansen, 6 North Michigan avenue, Chicago, are consulting engineers.

Minnesota

DULUTH—Giant Traction Co., 202 Palladio building, has been organized to manufacture tractor shoes and grousers, by C. H. Olson, manager.

LITTLE FALLS—Bids will be received soon by Major P. C. Bettenburg, Little Falls, United States engineer, for a cast iron water main at Camp Ripley.

MINNEAPOLIS—General Electric Co., Schenectady, N. Y., E. M. Pinkerton northwest manager, has bought a block at Twelfth and Thirteenth streets on Washington avenue, for the erection of a manufacturing plant to cost about $500,000.

ST. PAUL—Universal Piston Corp. has been organized by Fred C. Nelson, president, E. S. Reiland, vice president, and P. M. Reiland, secretary, to manufacture a new type piston at Dunlap street and University avenue.

North Dakota

GRAND FORKS—Red River Valley Power Co., subsidiary of the Northern States Power Co., will build a 1-story machine shop and filter house and a 1-story switch gallery and cable vault building.

WAHPETON—Otter Tail Power Co., Fergus Falls, Minn., G. W. Welch chief engineer, will install a 7500-kilowatt steam turbine and make other improvements to its plant here.

Iowa

DES MOINES—City plans to issue $125,000 in bonds to build and develop a municipal airport.

Nebraska

OMAHA—American Airways, Major General John F. O'Ryan, vice president, will build an airplane hangar.

Pacific Coast

KLAMATH FALLS, OREG.—Great Northern railroad has authorized construction of a roundhouse and extensive machine shops here at a cost of $100,000.

Dominion of Canada

TRENTON, ONT.—Department of national defense, Ottawa, Ont., has started construction of a $3,500,000 air base here.

TORONTO, ONT.—Campbell's Electric Co. Ltd. has been incorporated with 40,000 shares no par value, to manufacture electrical equipment, by John Callahan, Toronto.